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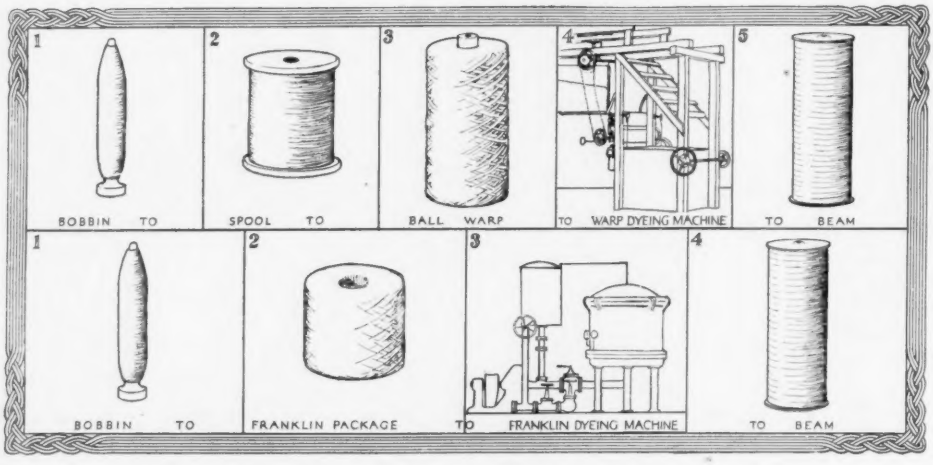

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COTTON

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With the Publishers—

A Greeting and a Wish

Christmas is approaching—Christmas with all that it symbolizes the world over as the anniversary of the Greatest Birthday known to man—

A time made by established custom the season of heart-warming felicitations; of unforgetable thrills and surprises; of glowing embers and tinsel and cherished remembrances; of joy unstinted and gladness unrestrained; of "homecomings," of reunions with loved ones around the family fireside.

Come as they will, the changes in other customs of life, in living, in business; whatever may be the station in life, Christmas came, and has endured, as the acme of holidays and of gladness, to all.

And in keeping with the spirit of the day, the publishers of COTTON—each and every one of us who serve through the magazine—all, extend to you, our reader, our friend, our business associate, the greeting sincere:

"A Merry Christmas!"

Standing upon the threshold of another year, it is the custom to take inventory of our resources and to study the basis upon which it will be entered.

Most important and most vital for industry, perhaps, is the quadrennial election of an administrative head for our government for the ensuing four years, which has now become history. The large popular vote in favor of the present incumbent over the combined totals of his opponents is indicative of a sane and thoughtful state of mind among the electorate that breeds confidence.

Specious promises by "liberal" candidates with socialistic trends and "red" left wing adherents fell upon deaf ears. Even the self-constituted mouthpieces of "labor" were unable to make good on their promises to these candidates, because "labor" is but a composite group of individuals capable of thinking and reasoning "even as you and I"—and a realization of this fact also induces confidence.

Nationalization and communism in Russia, with its all too evident results during the past few years and its gloomy forecast for the future, has been too widely and truthfully described in the periodical press of America to allow even a hint of such a program to be popular here. The fact that money for propaganda purposes forwarded from Russia to left wing radicals in this country has been intercepted in transit by agents of our government was a warning sign of danger that left little need for additional educational work. Its result has been attested.

The evidence of sanity and straight thinking by a multitude of voters will be most influential in relaxing the strain on capital by promoting confidence. Corporations that have for many months contemplated certain increases and additions, in some cases having gone so far as to acquire the land and have engineers prepare the plans and specifications, will now proceed to bring these proposals to fruition.

Confidence in the ability of President Coolidge to continue his program of reasonable economy in governmental expenses especially with the aid of a new Congress that will perhaps be more amenable to his policies than has been the one going out next March, is the ultimate answer.

Economic progress shows gains in almost every quarter. The South in particular is looking forward and onward in its textile manufacturing development; while in the older textile manufacturing sections of the country, those apart from the industry are coming to realize more and more the need of close study and better understanding of the problems of what constitutes one of the chief industries of their section.

It is for these several reasons that we urge all those with whom we have been associated more or less closely during the past year to "be of good cheer." The prospects for the immediate future and probably for the next two years, seem to be bright with promise, and so, with every reasonable assurance of its realization, we express, to every factor in the industry, the age-old wish—

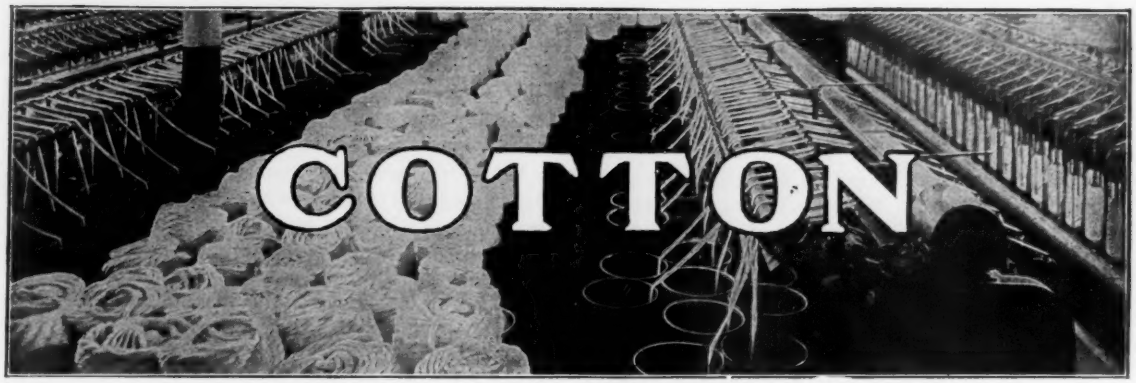
"A Happy and Prosperous New Year!"

AMONG COTTON'S READERS

Ira Plemmons, Manager,
Hot Springs Hosiery Mills, Inc.,
Hot Springs, N. C.

"Your letter and information to our Superintendent has resulted in some nice orders, and we thank you. We find a lot of the very best information in COTTON, and we shall take it as long as we run a hosiery mill.

Ira Plemmons



December, Nineteen-Twenty-Four

Just a Matter of Principle.

Scarcely a newspaper ouside of that State published the fact that the voters of Massachusetts at the ratio of nearly three to one went on record at the recent election as opposed to the pending so-called "child labor" amendment to the Federal Constitution.

Why did the news associations fail to carry that item of news—real news, for it was the first expression on the subject by a large group of voters—or, if they carried it, why did virtually no newspapers publish it?

The reason can not be any of those invidious influences which newspaper critics often find, in their own minds, so explanatory.

No doubt the omission was due simply to lack of general interest in the subject.

Why the lack of interest in a proposal for amending the Constitution in a quite radical way?

This owes chiefly to the fact that scarcely anything is involved in the question—at present—except a principle. And the run of people are not always deeply concerned about political principles that don't bear immediately on something relating to their more or less material interests.

Were there any such child labor conditions as the sponsors of the proposal pretend there are, public concern would have been aroused at least to the point of making the result of the Massachusetts popular vote an item of national news.

It would be only natural to suppose that at least some of those persons or groups profiting from such conditions would have stirred up interest in the question.

But no such conditions prevail, in despite of the mouth-filling statistics put forth in raw and undigested form by leading advocates of the proposal. These statistics, as has been shown repeatedly, do not stand the test of analysis.

The Massachusetts vote answers, as that of no other State would do, the one possibly valid argument for this measure, that is, uniformity of laws and regulations on the subject. If the industries of any State have suffered because of non-uniformity, those of Massachusetts certainly have done so. For laws relating to the working of children and others in that State have for long been the most extreme in the country. In fact, it is not beyond the probable that in the past these have weighed somewhat against the development of industry in that State.

But, as comparatively few people bother to learn, past conditions as to this matter have little relation to present ones. Uniformity in unusual degree does now characterize the child labor statutes as well as child employment practices especially in manufacturing and similar industries throughout the country. This is proven by the very statistics which the advocates of this proposal insist that the public should gulp down whole and unanalyzed. They show, for example, that proportionately fewer persons under sixteen years old work in the cotton mills of the South than in those of other sections, and that the proportion of such in any section is so small as to have virtually no bearing on profits. Yet the majority of ordinary, busy, wholesome-minded people of fine instincts who favor this amendment are for it solely out of belief that it is needed for correcting conditions in the manufacturing life of the South! That is, they think in terms of the muckraker of the early nineteen hundreds.

In truth, these, like most other people, are little concerned about it one way or the other, as illustrated by the incident mentioned above. They have little concern about it because there isn't involved in the matter—at present—enough of a tangible and immediate nature to arouse their interest. Could there be any other illustration of the utter lack of necessity, of the absence of all legitimate excuse, for the ratification of this Congressional proposal? Could one imagine the presence in the country of more than a "million child slaves," as the proponents of the proposal allege, with all but no general interest in a plan for freeing them—neither on the part of those who would profit from this slavery nor the millions of other persons who could not help knowing much of it at first hand?

Paradoxically, it might be said that the only chance of the amendment being ratified is the absolute lack of need or excuse for it—that is, it may be ratified solely because it involves—at present—nothing but a principle.

But what involves only a principle today may affect concrete actualities in far-reaching directions tomorrow. It is these actualities which inspire most of the active supporters of this drastic change in our fundamental law.

That their primary claims and accusations are untenable is shown by the fact that they themselves disavow any intent of going further—at present—under this amendment than practically all of the States have gone already in the matter of legislation directly affecting the employment of children. They would not materially raise prevailing age limits; they would not extend the laws to cover work in

the home or on farms. They merely would set up a national overhead establishment that only would duplicate and meddle with and complicate what is being done already.

This, however, would provide jobs and a singularly bureaucratic power. For this amendment gives Congress the right to delegate to bureaus in Washington the power to suspend the operation of certain State laws at the will of the bureaucrats. That is, under it, national statutes relating to the "labor"—which means virtually anything—of persons—not merely children—under eighteen years old might not only go beyond but might supplant all State laws bearing at all upon the subject.

But the mild and unnecessary procedure which they say would be taken—at present—constitutes but a beginning of what they have in mind. This would be but the planting of the seed of what its chief culturists expect to become a deep-rooted and monstrous tree of bureaucracy, autocracy and social revolution. What they are after ultimately is the nationalization of children, the subjection of the home—"which the king dare not enter"—completely to the state, the uprooting of the sacred rights and duties of parenthood, the destruction of all vestiges of individualism.

History shows that once planted in the soil of our governmental system such a seed is beyond upturning. Nothing under heaven is more sacred than a Federal bureau once established, and few developments are so certain as that the powers of such a bureau, however oppressive and obnoxious, steadily will be increased from within and without. If you do not believe this look up the history of these bureaus now in existence, not omitting that of the Children's Bureau, initially the mildest and best-purposed of them all, which is the chief sponsor of this pending amendment to the Constitution.

Of course the advantures here evisaged are far from the thoughts of many, if not most of the persons, who out of sentiment, compassion or misconception of facts are for this proposal. But most of the great evils that have oppressed humanity have come about through support given them initially by well-intentioned folk who didn't look beyond the outward aspects of good to the inner and ultimate prospect of harm.

These advantures are envisaged by the average of chief sponsors, made up in the main of professional meddlers, uplifters, reformers, and active or quiescent revolutionists, —busybodies who live by meddling alone, spurious humanitarians, persons who never finish any reform because their occupation, like Othello's, might be gone, subtle and serious-minded gentry who think that the way to world salvation lies along routes defined practically by men of the Trotsky and Lenine type.

They conceal their real intent and purpose behind smoke screens of sentimentality and exaggeration and misstatement of facts.

They are aided mightily by the circumstances that those who would combat them must rely almost wholly on the weight of abstract principle, that something which to most people is vague and boresome.

Yet it is refreshing to note that where the issue is drawn clearly, as it was recently in Massachusetts, the public has responded soundly and sanely. One may doubt if the voters in any State in the Union would go on record as saying that they or the people of any other State are so depraved that they can not be trusted to deal properly with such intimate matters as childhood, the family and the home. But the chief sponsors of this amendment do record themselves as holding to that discreditable contention, though they dare not name the States whose people and governments they rate so degradingly.

Within the next few months it will be determined whether abstract but indisputable principle will prevail over sentiment misguided by subtle and dangerous propaganda. If the State legislatures that are soon to act follow those that have acted or whose people have spoken on the subject the amendment will be rejected overwhelmingly.

The Senator from Idaho.

Seventeen years ago there came out of the "wild and wooly" West into the national life of the country a comparatively young man whom everybody at the time thought would be just another United States Senator. Since that time he has been a singularity, a prodigy in some respects, a contradiction and an enigma.

There is little in American political tradition, unless one goes back to Revolutionary times, to explain and account for William E. Borah.

Unambitious in a realm where ambition generally is everything, a classicist among moderns, always independent but never with a capital I, sometimes as radical as a bolshevist but usually as conservative as a Tory—such is the Senator from Idaho.

Of all the figures now prominent in national life, most close students rate William E. Borah as by many odds the biggest and the most trustworthy.

Borah's repute among Democrats is probably greater than among his brother Republicans; singularly, he has as high repute among those who are neither. Conservatives rarely count him as one of them; radicals usually do.

Yet the record shows that Borah might be rated truly as a great conservative. Sometimes he has opposed radical doctrines that found support among conservatives; rarely has he favored any that involved elements of basic principle. Generally he is more conservative than the conservatives themselves.

Only at times has he risen to recognized leadership in or out of Congress, for the reason that he always places the question above group or party and deals with it on its merit, as he sees it, alone.

The recent election as well as the hand of death may have combined to force him into a position of continuing leadership. In the new Senate there will be a larger number than ordinarily of the Borah type of statesmen. The death of Brandegee, of Connecticut, and of Lodge, of Massachusetts, gives him the choice of the chairmanship of either the judiciary or the foreign relations committee. Either of these places carries with it the necessity if not the obligation of consecutive leadership.

It may come to be that Borah, of Idaho, will be the dominant figure in the next Congress, as on occasions he has been the dominant figure in many Senate situations in recent years, i.e., in the fight over the Versailles treaty.

If this should happen, one may look for at least a partial restoration of Congress as it was in the days of Calhoun, Webster and Clay.

In any event the student of politics as well as the observer of government should keep an eye on Borah. In

recent years he has been about the only member of Con-Congress whose speeches read well whether you agree with them or not. He possesses a talent for true oratory, and in exercising it he is not ashamed to let it be known that he is a student or to speak the language of culture and intelligence.

Back to Responsible Government.

Whatever may have been one's favorite among parties and candidates during the recent campaign every one should be glad that the election result was such as to leave no question as to responsibility for the conduct of the Federal Government for at least two years to come.

The plurality given President Coolidge was apparently larger than was Harding's majority, with only two tickets in the field, in 1920. Coolidge's majority over all candidates was the second largest in history.

In other respects Coolidge's victory was more decisive than that of any other candidate for President in recent years, for it extended all along the line. Since 1910 there has been only occasional and spasmodic harmony between the White House and the Capitol. In fact, during most of that period no single political party was in complete control of Congress. Woodrow Wilson's first Congress was the only one that "played ball" freely with the President or the party in nominal control.

The next Congress, it seems, will reflect the national expression as given in November. The increasing of the national Republican lead as well as a reduction in the strength of the LaFollette or insurgent bloc and pertinent changes of personnel in other respects should leave no room for alibis concerning what is done during the next two years.

If party government, which under our system is true representative government, is ever to be restored it now should come back. And if the country looks to the President for full and responsible leadership in national affairs, which seems evident, President Coolidge is in a position to respond to its wishes.

That the country is at heart conservative, or, rather, not radical, that it has no liking for government by blackmailing minorities and club-swinging blocs, is made quite evident by the returns.

It should not be forgotten that the country voted overwhelmingly for him in despite of the fact that Calvin Coolidge arrayed the veto power of his office against several exceedingly "popular" measures, like the soldiers' bonus, the Bursum pension-grabbing bill, the postoffice salary-raising bill and others, and stood for the Mellon plan for reducing "the taxes of the rich" in order to cut governmental wastes to the lowest possible limit. One need have no great fear of extremisms and innovations while this cool, phlegmatic, cautious Yankee is in charge of national affairs.

Bolshevists and the Constitution

BY THE SHADE OF JOHN MARSHALL.

The Constitution of the United States is one hundred and thirty-five years old, and the most marvelous nation in the history of the world has been developed under its provisions and privileges.

It has been acclaimed by students of governments of all creeds and nationalities as one of the most glorious and perfect pieces of governmental expositions ever devised by the brain of man.

In spite of the great principles of the Constitution and the glory of the nation which it has developed, there have been 3,200 resolutions offered, proposing to amend it. In the Congress which just passed, there were nearly 100 proposed amendments, among which was a proposal to call a national convention to write a new constitution. Can the great public mind of the nation conceive of the line of thinking that will cause a national legislator to propose a convention which shall have for its prime purpose, the abrogation of the very vital principles upon which our government rests and substitute "other modern ideas" in lieu thereof? "Our Government has been a failure because of the Constitution of the United States." Are there not sufficient people of patriotic devotion and conservative intellects who will arise and in the opening words of Longfellow's Blacksmith," say,—

"Woodman, spare that tree, touch not a single bough,
In youth it sheltered me, and I'll protect it now."

It is not necessary to dwell upon this point longer than to call to the great lay mind the fact of the insidious and heinous machinations of certain schools of political thought.

There are always brooding certain ideas and principles, destructive of the democratic theory of government and these are being guided by shrewd and scheming enemies of the United States Government.

There is a tendency in government for class legislation, political and financial advantage. These schemers stay far in the background or are garbed in attractive and enticing adornment which attracts the admiration and adoration of the great unthinking mob.

The Constitution was written by a far-seeing, non-political, unselfish, altruistic, spiritual body of men. The Constitution has not been exhausted of its dynamic possibilities. There is much latent power yet incorporated within its provisions. It is not a useless relic of an evo'utionary program whose function has been fulfilled so that now a new document is necessary—if not a new document, a constant emasculation of its very life.

The late Senator Carmack, of Tennessee, said, "It is difficult to weld a pewter handle on to a golden bowl; it is difficult to weld a dead branch to a living tree and make it grow and blossom and bring forth a hundred fold."

The Child Labor question was not of sufficient importance one hundred and thirty-five years ago to warrant a paragraph or sentence to be written into the Constitution. Child labor conditions must have been worse then, than they are now. If not in the United States, they were in European countries and the writers of this document were sweeping world conditions and world governments for correct principles to embody in this guiding policy of the new nation.

The first great National Act on Child Labor was passed in 1916 and later in 1919, and both were found unconstitutional, and contrary to the Declaration of Independence. The United States has always prided itself as being "The

Melting Pot of Nations." Bigheartedly and unselfishly she has thrown wide open her gates of opportunity to all nations and said "Come and be Americans." They came so fast that they could not be melted, so they have begun to melt us. Shrewdly and insidiously they have entwined their clammy coils around the great law-making body at Washington. Under all kinds of guises and garbs have they come, and with patriotic and unselfish devotion do they beg for seemingly glorious reformations. They are "whited sepulchers" whose interiors reek with dead men's bones.

They are advocating principles which our wise political forbears have told us were for national destruction.

"They demand a strong national centralization of power, laws for the protection of children, for their nationalization, for the restrictions of the hours of labor, for fixing wages, for control of education, for maternity laws, for regulation of marriage and divorce, for anti-lynching laws, for censorship of the press and motion pictures, for regulation of hunting, fishing and other sports, for physical training, and for the regulation of and interference with every activity of life from the time the child's first cry is heard until he goes to his last long sleep" is the inclusive paragraph used by Senator Stephens, of Mississippi, in discussing this growing governmental tendency.

Many quotations as to what this all means could be used, but one or two will suffice.

Thomas Jefferson said: "A single consolidated government would become the most corrupt government on earth.

"To take from the States the powers of self-government and transfer them to a general consolidated government without regard to the special delegations and reservations solemnly agreed to in the Federal Compact, is not for the peace and happiness or prosperity of these States."

Alexander Hamilton said, "The States must, by every rational man, be considered as essential, component parts of the Union; and therefore the idea of sacrificing the former to the latter is wholly inadmissible. * * * Will the people suffer themselves to be stripped of their principles? Will they suffer their legislatures to be reduced to a shadow and a name? The idea is shocking to common sense. * * * This balance ought to be dwelt on with particular attention, as it is of the utmost importance. * * * The object of the State governments is to provide for their internal interests, as unconnected with the United States. * * * I insist that it can never be the interest or desire of the National Legislature to destroy the State governments. It can derive no advantage from such an event. The blow aimed at the members must give a fatal wound to the head, and the destruction of the States must be at once a political suicide. Can the National Government be guilty of this madness?"

The latest and perhaps the most far-reaching attempt that has been tried is what is known as the "Twentieth Amendment," called by some, the Child Labor Amendment, but this latter is a misnomer.

There are so many angles and points of attack in approaching this proposed amendment that it is with difficulty that the writer proceeds. What is the amendment?

"*Section 1.* The Congress shall have power to limit, regulate and prohibit the labor of persons under 18 years of age.

"*Section 2.* The power of the several States is unimpaired by this article except that the operation of State laws shall be suspended to the extent necessary to give effect to legislation enacted by the Congress."

Who proposed it?

It assuredly was not two-thirds of the various state legislatures petitioning to Congress for such an amendment, as research into that field fails to reveal such data.

It assuredly was not the farmers and manufacturers and great representative laymen of the nation as such evidence was not produced in any of the arguments.

It assuredly was not devised and framed by any representatives of the great political parties of the United States.

Certain information contained in the Congressional records indicate that its inception was the product of the brains and far-reaching intrigues of Socialists, Communists, League for Industrial Democracy, Internationalists and others. Space will not permit a delineation of the family tree which reaches back into discipleship of Karl Marx and Engels and other radical writers of doctrines that have a tendency to destroy the great republics of the world.

The shrewdest and most convincing people of the world are its *philosophers* and *psychologists.* They study the mind and its reactions, the actions and effects of these actions on mankind, then from a premise either real or assumed they draw their deductions. Their deductions are always of the kind that will tend to further the primal idea they have in mind to put over.

The average lay mind is a mind that does not think out original sources. It waits until the leader tells it what to do. Politicians and hobbyists of certain schools of thought clothe their doctrines in apparent decency and then throw their bait into the public pool for fish.

The proponents of this amendment have done this. The inceptors of this movement are not simply trying to protect people and children under 18 years of age. That is not their primal purpose. Their primal purpose is the overthrow of the principles of Government in the United States.

This is one assault they have made on it. They have clothed it in sentiment and service to humanity so that sympathetic hearts and non-thinking influential people will relieve them of the difficulty of putting the movement over.

The people who are the strong advocates, now that it has been removed from its birthplace, are looking at theoretical results and have never stopped to ask "Whither are we drifting and for what purpose?"

These villainous Government destroyers are sitting in the shadows watching the "innocents abroad" put into effect things that they can not do, but by the accomplishing of enough of these things, they can come out and boldly assert themselves. Is there not something that can be done to awaken the great lay mind to the dangers that impend?

Let us analyze the *Amendment* a little.

"*Section 1.* The Congress shall have power to limit, regulate and prohibit the labor of *persons* under eighteen years of age."

In the discussion of this as it was being written, certain ideas should be made known.

The words *"labor"* and *"employment"* were discussed, as to which was the better word to use. "Labor" was finally chosen at the suggestion of Miss Grace Abbott, Chief of the Children's Bureau, who said, " * * * The children often work with their parents and are not on the payroll, and are not held to be employed, and we feel that it is a dangerous word to use * * *." The word "employment" was construed to mean only working for pay.

Other words which were discussed were, "child," "chil-

dren," "persons," etc., in order that airtight inclusive bonds might be placed here.

It might be well to call to your attention here that this is not a Child Labor Amendment, nor is it so regarded by its proponents. There is no reference to child or children in the amendment nor are these words used.

The framers of the amendment purposely kept these words out to obviate any entangling interpretations or constructions.

It was the original idea of Mrs. Kelly, who is credited with participating largely in the drafting of the McCormick-Foster Child Labor Amendment, that "all persons under 21 years of age" should be written into the amendment. In discussing the word "child," she says, "Nothing can be more uncertain than the limitations which future courts may place upon the word 'child'——I withdraw all objections to the words 'twenty-one years,' but I am afraid of 'child'."

The words "child" and "children" are used in the propaganda sent out, but they nowhere occur in the amendment.

Children are generally considered minors under fourteen years of age, and above that age, they are youth, young men and young ladies, dependent upon social and individual environment.

The amendment is not intended for children. The regulation and protection of children up to fourteen years of age is provided for by State Statute in all states. In no country in the world is there law regulating the labor of persons up to 18 years of age.

If the proponents of this amendment are successful it will be only a matter of time until the age will be increased to twenty-one years, by a like amendment.

Notice the word "persons." This word is entirely inclusive. "All persons under eighteen years" of age, means exactly what it says. It includes all races, creeds and colors. It includes all vocations—farm help, factory help, clerks, servants, etc. It steps over all rights and privileges, personal and private, alienable and inalienable and with the sweep of one sentence denies all authority to anyone save the Federal Government.

There are three other words, "limit, regulate, prohibit," that are far-reaching and indefinable as they stand written in this amendment.

The second section says that, "Congress alone has the power to interpret the meaning and provisions of this act—no state can pass any law interfering with or impairing the strength of this article.

There are certain schools of political thought who desire to destroy the sanctity and purity and stability of the Supreme Court of the United States. They have been unable to do so thus far, but if they succeed in having this Twentieth Amendment ratified they will have succeeded in a new departure of Constitutional formation. This Amendment is so worded that it will be practically impossible to write an unconstitutional law under its provisions. Its possibilities are limitless and dangerous to consider. It is a full grant of power from the States to the Federal Government.

This power is entirely too great a gift to relinquish to the Congress of the United States. It is revolutionary in its demands. It usurps not only State rights, but rights of the family and the child. It is another step toward centralized government and abolition of State rights to both of which principles we are intensely opposed. It is opening the flood gates of the treasury of the United States to turn loose vast sums of money which shall be collected in proportionate part from the tax payers of each State. Taxes are killing industries and producers of raw materials today. They are also taking necessities of life from great crowds of uneconomic people.

Judge James A. Emery, general counsel, National Association of Manufacturers, says, "If much is to be required of government, much is to be given to it. In 1922, 3,400,000 persons received more than $3,800,000,000 in public compensation. We pay yearly, from the Treasury three times as many persons as are employed in all branches of the mining industry, a number more than equal to all who are required to work our street and steam railroad systems; five times as many as mine our coal, and six times the number engaged in the basic production of iron and steel and the maintenance of our foundry and machine shops. The sum required to support the recipients of government compensation for a single year would meet the payrolls of the automobile industry or sustain every form of our textile manufacture from messenger boys to the higher paid executives for a ten-year period.

"Within twenty years we have doubled the number of Federal civil employees, while the wage-earners of the United States have increased but ten per cent in the last decade. The public payroll now embraces one person in every twelve gainfully employed.

"Bureaucracy gains with astounding strides. In the first year of the twentieth century the Federal Government possessed three independent boards or commissions, operating at an annual cost of $820,000. The appropriations for the present fiscal year will provide for the support of thirty-three independent establishments at an annual expense of more than $650,000,000. These administrative bodies alone represent annual appropriations requiring more than $200,000,000 in excess of the total cost of all the departments of the national government in 1900."

Some wise philosopher said: "That people is best governed that is least governed," and we believe the statement is good. Laws are not a panacea for the ills of mankind, nor can laws be made to suit the transgressions of the race. Because of the fact that politicians and misguided reformers have taken the position that only laws are necessary, the phrase, "Within the Law," has become a reality in our American life. To state this fact in another way, many consider that if it is within the law, it is right, or if there is no law against the act, it is right. Public conscience is dead or sleeping, and the letter of the law is the power of the land.

About 1900 years ago the greatest man of history, considering him from only a worldly viewpoint, said, "I come, not to fulfill the letter of the law, but the spirit of the law."

In those days a man could not become a member of the Sanhedrim, which was the state authority, unless he could give about two hundred different interpretations to any phase of the Jewish law. The result of this condition was that the people absolutely destroyed themselves with laws and their interpretation of them.

We are in that same period now. Public Conscience is not active or sensitive to many things because we have carried it on legal crutches so long.

The income tax law was a temporary expediency as we all thought. There is no privacy of business or recluse of person that is safe from the inroads of this army of inquisitive and often overbearing investigators and Federal

Inspectors, who, with their unlimited authority, read and study our methods and manners of business and accounting. They have their own systems and issue their ultimatums, as though they were the sons of Kaiser William. They go and come, they demand and demand again, and we never know the final outcome.

The Federal Appropriations for Roads and Schools and Rehabilitation of Injured in Industry are all accompanied by inspectors and demands of national authority, all of which make the State subservient to its mandates.

Often the state's submission in acquiescing to the demands is a sacrifice in principle as well as material good, but this must be done in order to secure the appropriation. Many people of the states, who do not know of the pernicious practices involved, and look only at the figures represented by the appropriation feel that their state must get her part. There are various other bureaus and departments insidiously winding the slimy fingers of federal usurpation around our principle of State's Rights.

The Federal Child Labor Amendment under the guise of humanitarianism is misleading millions of unthinking people into a frenzy of self-pride and pseudo-patriotic devotion to save the youth of the land by taking them away from the control of their mothers and fathers, by taking them away from the control of the people for whom they work, by taking them away from the guidance and control of the sovereign state in which they live, and should enjoy the blessings of life, liberty and the pursuit of happiness. Then they give these children into the hands of an army of paid political, form filling, non-thinking federal inspectors, whose very life and existence is dependent upon trouble and agitation. Unless these inspectors find something wrong, they will not be necessary for the government. Will they find it? They, too, are trained to give enough interpretations to the law to make it impossible for any employer to keep from violating the law. Therefore, there will be tie-ups, suspensions, trials, fines and endless forms and reports to make out and thousands of details which this parasitic group can evolve from their own self-seeking purposes.

But, you say, "They will go into the industries and clean them up, and they need it."

Turn back to the opening and read—"limit, regulate and prohibit the labor of persons under 18 years of age."

This means farm children as well as factory children.

Miss Grace Abbott, who is head of the Child's Welfare Bureau in Washington, D. C., has already gathered materials and issued circulars on "the poor down-trodden farm children of the West." In Georgia, at the present time, there is a group of Federal inspectors gathering material of every nature to be used in passing bills under this amendment if it ever becomes a law.

Will it affect the farmer,—it certainly will, according to Miss Abbott, and she is the authority on this measure. It will even go into the private home in its operation. These inspectors, with their obnoxious personalities and authoritative permission, will sit in our homes and by our firesides and dictate to fathers and mothers, as to what amount and kind of work that the children can do. Parental control will be usurped by political proteges, and the child in his tender years will waver between two forms of domestic control.

This law knows no color line. It is applicable to all creeds and colors, to all classes and clans. It pertains to the negro with the same regulations as to the white. What shall be done with this enforced idleness; what will become of the nation when once we bring on a generation that knows not parental control or the dignity of labor? As one of the Senators said, "Where is My Wandering Boy Tonight" will have a new and far reaching pathos as the appealing music floats out upon the homes directed and controlled from Washington.

Is it necessary?

The fifth article of the Constitution opens with this sentence: "The Congress, whenever two-thirds of both Houses shall deem it necessary, shall propose amendments to this constitution."

All of us know that certain pages of our history in the light of modern education and advanced social thinking are not glorious to read. We admit our errors and misguided efforts of the past.

Economic necessity and ignorance caused us to do things that we look back upon and rejoice that those days have passed. We have allowed or permitted certain things to happen in our agricultural, industrial and commercial life that will never occur again. An enlightened mind and a Christianized soul are great ameliorating factors in progress.

We are a young country. We had a bad start. Practically all of the colonies came over under adverse conditions, and often sent by the Mother Country for purposes of exploitation.

Our nation was born amidst clashing opinions of government, oppressed by a hand of tyrannous taxation, rocked in the cradle of war, and nurtured in childhood with ambitions of glory and empire, yet surrounded by debt and a wild and undeveloped country. We learned to work long hours and hard; we learned to hustle and to hurry; the Declaration of Independence was not only national, but individual. Our success has been determined by individuals and unhampered initiative. We have felt the refining influences of progress and culture. The social and economic state, the laws on our Statute book, our customs and traditions indicate better industrial, agricultural and commercial development.

We indicate below the state laws relative to the employment of children in factories:

Alabama	Prohibited under	14	
Arizona	" "	14	(Excep.—Boy 10 to 14 may, upon license, outside school hours, work at labor not harmful.)
Arkansas	Prohibited under	14	
California	" "	15	(Excep.—Child 12 during school vacation.)
Colorado	" "	14	(Excep.—Child 12 during summer vacation.)
Connecticut	" "	14	
Delaware	" "	14	(Excep.—Child 12 outside school term on special permit.)
Florida	" "	14	
Georgia	" "	14	(Excep.—Child 12 on permit, if orphan or has widowed dependent mother. 127 such permits issued during 1923. Bill now pending before the Legislature eliminating this exception.)
Idaho	Prohibited under	14	
Illinois	" "	14	
Indiana	" "	14	
Iowa	" "	14	
Kansas	" "	14	
Kentucky	" "	14	
Louisiana	" "	14	
Maine	" "	15	
Maryland	" "	14	
Massachusetts	" "	14	
Michigan	" "	15	
Minnesota	" "	14	
Mississippi	Boy prohibited under	12; girl, 14.	
Missouri	Prohibited under	14	
Montana	" "	16	
Nebraska	" "	14	
Nevada	" "	14	
New Hampshire	" "	14	
New Jersey	" "	14	
New Mexico	" "	14	
New York	" "	14	
North Carolina	" "	14	(Excep.—Boy 12 on special permit outside school hours. Only 66 so employed during 1923.)

North Dakota	Prohibited	under	14	
Ohio	"	"	16	(Excep.—Child 14 outside school term.)
Oklahoma	"	"	14	
Oregon	"	"	14	(Excep.—Child 12 outside school term.)
Pennsylvania	"	"	14	
Rhode Island	"	"	14	
South Carolina	"	"	14	
South Dakota	"	"	15	
Tennessee	"	"	14	
Texas	"	"	15	
Utah	"	"	14	
Vermont	"	"	14	
Virginia	"	"	14	
Washington	"	"	14	(Excep.—Child 12 on permit of superior court judge in case of poverty.)
West Virginia	"	"	14	
Wisconsin	"	"	14	(Excep.—Child 12. during school vacation.)
Wyoming	"	"	14	

We could quote other laws such as general Welfare Laws, Maternity Laws, Compulsory Education Laws, Compensation Insurance Laws, in fact, if we should produce this evidence, we should have to produce forty-eight volumes of some of the most enlightening evidence that has ever been reviewed by a law-making body.

Mark you, I said that this would be in forty-eight volumes, indicating, as I would have you know, that each state has taken a peculiar selfish and personal pride in the development of her wards. When you have read these volumes, the story is only started. Has decadence set in? Are we returning to the "dark ages" of our economic life? Is danger ahead? Is it necessary to crack the Bull Whip of Federal authority to drive the national ideals on to further heights?

Miss Grace Abbott says that we are still advancing; there is no regression; we are in better condition today than we have ever been; the wheels of welfare progress have not stopped, nor are they slowed down. Then why this urging for an amendment to our constitution to allow this drastic legislation?

Have we not made great progress under the care and protection of the States? Dare we not boast with great State pride of our achievements? Do we not watch with jealousy our step in the great march of state progress? Is it not an inherent right that belongs to each state to be the custodian and keeper of its wards? Do not people discharge trusts and duties more fully and exact when under the guidance of individual initiative and watched by a glorious and chivalrous approving State, than when compelled by the despotic hand of revolutionary measures and goaded on by paid inspectors?

There are violations of law and always will be, as long as there is perversity in the human family. But because there are 500 criminals in Atlanta does not indicate that the other 249,500 people are criminals. If the social progress of any state could be written fairly and impartially, if the changed working conditions for the last twenty years on farm and in factory, in store and counting house could be written impartially and without embellishment, it would make one of the most fascinating and romantic pieces of realism that has been written.

It is the natural inclination of most employers to do much for their employees. They safeguard their health, their life, their social and educational environments. They would do more if it were not for the social and political agitator, who is always cracking the whip of legislation. If the professional reformers and political parasites and seekers of self aggrandizement would stay out of our civic and industrial life forever, we would make more rapid progress. I have known legislation to be proposed which met with the approval of certain industrial interests, yet because it was born in the bed of insincerity and nurtured in the cradle of selfishness, it was opposed and defeated by these industrial interests. I have known legislation to be proposed which in its demands was not as exacting as the demand of the interests at which it was aimed, and yet this legislation was opposed and defeated because of the insincerity and ignorance of the proponents.

Is it necessary? Most emphatically and thunderously NO!

The individual states are looking after this; the counties and cities within the states are looking after it; the individual employers are looking after it, and correcting the evils as rapidly as society and economy will permit.

The records show that progress has been made, and is not slowing down; we are going on and getting better all of the time. The child does not need to be shielded from the proper industries of life; he does not need to be taught that labor is drastic and tyrannical, and something to be despised and avoided. He needs to be shown how to work, the nobility and dignity of labor and to fulfill the multitudinous scriptural injunctions relative to labor.

Is it practical?

The theory is beautiful on paper if we can make ourselves believe that we are a strictly homogeneous nation of common blood, common inheritance, similarity of climates, living under the same social and economic laws and traditions, and a dozen other things too numerous to mention. It applies to the warm and agricultural coastal plains of the South; the bleak, cold intensely economic area of New England; the waving wheat fields of the West, the great flour bins of the world where daylight to dark and all hands contributing their part are necessary to give bread to our nation; the sunny slopes of the Pacific; the congested breadline of penury and want of our great commercial centers. The wide diversity of social and economic demands, the wide diversity of national and racial inheritance and ideals, all this has thus far been looked after by our States. But a group of political agitators and parlor reformers, figure jugglers and "public tit suckers" come around and say, "You people of the States are incapable, you have failed, you must put it into a bureau and let it be looked after by inspectors. It will cost only millions of dollars, and we need the money and can do it so well. It is true we never did this, but we know we can, because we have taken a course, and we are experts." As old Cicero exclaimed, *"O Tempora! O Mores!"*

Is it practical?

It will cost each state an enormous amount annually to support this measure besides the worry and harassing, incident of inspection, trials, fines, etc.

Are individual states incapable of discharging their duty to their wards, and must they cry out in despair, "I have failed! I have failed! I cannot take charge of my children below 18 years of age; I give them over to the inspectors of the Children's Bureau of the Federal Government."

Or, shall each state arise and sound the danger tocsin and wave aloft the symbol of statehood and defiantly warn against the encroachment of alien rights upon her domain? If states do not stop this national control, this commission and bureau control of officers, soon we shall have to wipe out state lines and state sovereignty, and in the language of

one of our South Carolina Congressmen, "We shall wash the flag of its stars and stripes, the emblem of sovereign states and incipient statehood, and after it has been bleached of its patriotic hues, we shall bathe it in a color and place thereon an emblem that fits an empire, and forget the idealism of Democracy."

The closing sentence of the foregoing paragraph may seem to some an excellent place to stop, but that is not the end of this direful tale of kaleidoscopic variations.

The power of regulation of labor of childhood, youth, young manhood and young womanhood now lies within the State's Rights. They are amply caring for them, why cast the responsibility aside?

But, for the sake of further exposition, suppose that the Amendment is ratified—what more will be necessary?

There must be Federal laws for marriage and divorce, otherwise what will happen to the numerous cases throughout the nation wherein persons between the ages of fourteen and eighteen marry and produce offspring before the law relieves them of the three words, "regulate, limit, and prohibit"?

The subject involves bureaus, supervisions, inspectors, forms, expense; this means deception, evasion, disrespect for law, more taxes, more federal employees, further usurpation of state's rights, further invasion of individual rights and many other phases.

There is a great gap now between compulsory education laws and eighteen years of age. There will naturally follow nationalization of education with a further extension of bureaus, expenses, taxes, usurpation of State's rights, individual rights and other phases. The nation is too large and too cosmopolitan for such an unfortunate step, and yet the government cannot afford to make idleness a necessity by legislative enactment, nor can it compel the states to levy taxes and assume an obligation made by its own enactment. National education means national dictation of subject matter and content.

There will be much dependency and delinquency incurred by the enactment of the Twentieth Amendment and much social legislation, such as pensions for various classes, provisions for care of those who would otherwise care for themselves. Since the government has deprived them of their sole means of support and they are in a state of dependency and helplessness, the government of necessity must care for them. It is not necessary to try to portray the awful and expensive complexities this would incur.

There will naturally follow maximum hours, minimum wages for the various classes of labor and this is attendant with the same evils as other bureaus and overhead supervisory departments are.

It means the complete transformation of the conditions of juvenile labor and its socialist reorganization. The following quotation from the Young Workers League of America, one of the sponsors of this Amendment follows:

"The militant program of the Young Workers League does not take account of the needs of the capitalist system, nor is it merely a means of eliminating the worst instances of the exploitation of the working-class youth. It must * * * proclaim the ultimate and fundamental aim of the young worker, *the complete transformation of the conditions of juvenile labor and its socialist reorganization.* This means *abolition of all wage slavery for all young workers up to 18 years of age. The young workers must be cared for by the State and treated from an educational point of view until they have attained this age.*"

This amendment is the forerunner of all these and even more. It has a connection with the Socialists, Internationals, Communists, as proponents; with state support of children, with national education, maternity bill, compulsory registration of expectant mothers, standard requirements for obstetrical care and many other unseen ramifications. Miss Abbott practically admitted that this amendment was designed to mean "something more than child labor,"—that it is seeking "constitutional authority" to do "other things" which it does not consider it "tactically" expedient to reveal to the public "at the present time."

Mrs. Florence Kelly testified before the House Committee on Agriculture: "We are now organized with a thousand ramifications. We have more interlocking directorates than business has."

Later, in another hearing she said: "It is unsafe to leave children to the tender mercies or the pressure of ignorant parents, etc."

How will all of these invasions and usurpations be made compatible with the provisions of the Fourth Amendment of the Constitution?

"The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated,***."

Perhaps that amendment will be annulled by proper procedure of these same proponents when they find that it will be a stumbling block or a hamper to their socialistic invasion of government.

In this concluding paragraph, if a summary or clincher sentence is necessary, according to the rules of rhetoric, it is this—"Beware of the Greeks bearing gifts."

This Twentieth Amendment is not only dangerous in its own rights and manifestations, but it is a forerunner of a group of the most damnable and dastard complications that has ever invaded the sacred and honored precincts of the legislative halls in Washington. The aftermath will bring into view some of these "other things" which "it is not now tactically wise to reveal."

The Twentieth Amendment is not an economic or political necessity. It is, however, a sympton of an internal political cancer which is eating out the vitals of our national life. Instead of allowing it to spread, it should be given the X-ray treatment, the radium cure, or whatever modern method political science is able to use.

The United States Government was founded on democratic principles, built around some of the most unselfish, unprejudiced and far-seeing students of government that the world has ever known. When once the constitution becomes easy to amend, when once it lends itself to modification, to every caprice and whim of wild-eyed political thought, the anchor that holds the Ship of State safely in harbor will be torn loose and disaster will be our doom. The constitution is being tampered with too much, and when it becomes the buffoon and sport of paid politicians, it will lose its dignity and nobility.

Let statesmanship, regardless of party, regardless of cost, regardless of the cries of the rabble, ascend the throne of righteousness and justice and judgment and with a flash of imperial wisdom wave back to foreign countries and oblivion principles of government which destroy our usefulness and idealism.

New England Mill Men Meet at Boston

The annual meeting of the National Association of Cotton Manufacturers was held in the Copley-Plaza Hotel, Boston, Massachusetts, on November 12th and 13th, with unusually good attendance and a helpful program.

Morgan Butler, treasurer of the Butler Mill, of New Bedford, Mass., was elected president, succeeding Robert Amory of Boston. Other officers chosen were: Russell H. Leonard, treasurer of the Ipswich and Pepperell Mills, senior vice-president; John A. Sweetser, treasurer of the Boston Manufacturing Company, junior vice-president; directors for three years: W. Irving Bullard, John L. Burton, John S. Lawrence, James Sinclair, E. Kent Swift; directors for two years: Albert G. Mason and W. S. Pepperell. The national council representative named was C. F. Broughton, treasurer of the Wamsutta Mills, New Bedford.

The opening session of the convention, on Wednesday afternoon, November 12th, was devoted mainly to business, including the reports of officers and committees, the address of the president, etc. Another feature of this session was the discussion of the Federal Trade Commission's "Report on the Cotton Trade," which was led by Mr. Amory as chairman, with the main speakers being Byron P. Parry, of the Federal Trade Commission; Richard T. Harriss, of the New York Cotton Exchange, and C. B. Howard, of the American Cotton Growers' Association. The discussion centered on the recommendation of the report pertaining to southern deliveries on New York futures contracts and for the three contiguous grade contracts. The final feature of the session was a discussion of "Warehousing Farm Products Under the United States Warehouse Act," by H. S. Yohe.

On Wednesday evening the regular cabaret-dinner social feature of the Association was held, with a splendid attendance. An excellent program of entertainment was enjoyed.

The Thursday morning session included the election of the new officers named, and other routine business, following which the general topic of "Studying the Job" was discussed with S. H. Greene acting as chairman. Among the speakers were William O. Lichtner, of the Thompson & Litchner Company, Boston, and J. M. Barnes, of Harpham, Barnes, Sevenson & Co., Inc., Boston.

Mr. Litchner emphasized the importance of "Studying the Job," showing its application to the textile industry, and citing examples in other instances where, by "studying the job," tremendous savings had been made. The steps in the procedure he called (1) to make an analysis of the factors of the job, (2) to make a measurement of the performance of the job, and (3) to perpetuate the results obtained through making an analysis and a measurement of the performance.

Another thought-provoking discussion of the subject was the paper of Mr. Barnes, who declared that a great many mill managers are not getting the best possible results from their operatives, due to the lack of complete and detailed knowledge of the conditions existing in their own plants. In proving this statement, Mr. Barnes said in part:

Studying the Job.

"Final labor costs of any product depend on the amount of work turned out as well as the rate of wages paid. It is possible that in the past, too much attention has been paid to the rate feature and not enough attention given to the quality of service rendered. Did you ever analyze the work of different operatives? Some day, after you have watched either a spooler or a quiller tender doing a real day's work compare those duties with some other jobs around the mill and you will find you are paying many hands skilled wages for working two-thirds of the time; and very often doing skilled work about half the time they are working. The other third of the time they are absolutely idle, perhaps not even watching their work run. Jobs have been laid out on the basis of ability possessed by the average operative. If we can arrange to divide the work being performed under two headings—skilled and unskilled, and devise methods for employing the idle time referred to,—we have a common sense basis upon which to start the work of reducing costs.

"No doubt a majority of us will agree that card grinding requires the services of a skilled workman. How many cards do your grinders look after and what proportion of their time is occupied in doing skilled work? Are not some of the duties assigned to them irksome to real mechanics?

"Most of us will also agree that, as far back as we can remember, a pair of frames has been the usual assignment to all speeder tenders regardless of their skill or ability. If they are particularly good the mill gets a high percentage of production of excellent quality. If they are average operatives commensurate lower results are obtained. The work turned out by the group which rates below the general average not only increases the cost of roving but is the cause of trouble and loss of production in the spinning and weave rooms. The question here is what proportion of the speeder tender's time is occupied in doing skilled work, and what proportion is used in doing unskilled work which could be done more profitably by untrained help? In other words, does the average mill capitalize all the skill which it possesses in its personnel, thereby making the job more attractive to the skilled operative, or does it mix enough unattractive duties with all the jobs so that it is difficult to secure and hold workers who possess real abiliy? If the job is properly studied and appropriate changes made in the method of operating a room, there is a chance for real advancement in the department itself. In this way not only will the skilled operatives be better satisfied but also learners coming into the mill can look forward to an attractive job as regards duties, as well as pay, when they are far enough advanced to deserve promotion.

"Let us pass along to the spinning room and ask ourselves some more questions. A spinner performs about three operations which really require skill. How many ends do your spinners piece up per thousand spindles per hour? How many bobbins of roving do they creel per day? How often do they clean their thread boards and roller beams? The answers to these three questions depend upon the size of yarn, kind of stock being used, size of roving bobbin, and the condition of the machinery and equipment. An analysis of your own conditions will demonstrate what percentage of her time is utilized in performing the work upon which her pay should really be based. Why do New England manufacturers continue to pay skilled wages for unskilled work?

"It has been my experience to go through spinning

rooms which apparently were running very well, yet after making a careful detailed study of the job, I have been surprised to learn that the operatives were really doing an unnecessary amount of work on account of the continual breaking down of an abnormal number of ends. Naturally the overseer takes pride in having his room impress you as being well run. He insists that the ends be kept up, at the same time, however, failing to make a determined effort to find out why the work does not run better.

"An analysis, such as mentioned above, in your spinning room may disclose mechanical conditions and poor preparation of roving which can readily be improved.

"A careful observation of the spinners in a room will disclose the facts that some carelessly creel in roving with long laps or "pig-tails," and piece up ends in such way as to cause bunches and uneven places in the yarn which either breaks in the loom, or is responsible for the bad appearance of the finished cloth.

"This naturally holds true wherever piecings are made. If the very best and most skillful operatives are picked to perform this important function, relieving them of all other duties, it can readily be seen that not only will quality be improved but the cost of production will be materially lowered.

"Where standard numbers of yarn are being spun, with comparatively little changing, an analysis of conditions often discloses the fact that third hands or section men are not sufficiently well fitted into the general production scheme. Their value to the mill can be considerably enhanced.

"Do you know by actual test what percentage of time your doffers spend on the real job for which they are paid? A few mills are receiving the benefits to be derived from paying their doffers on the basis of hanks turned off by the frames. 'A word to the wise is sufficient.'

"If you are making standard styles of cloth in your mill it is possible to so standardize your conditions that a slasher tender is able to run two slashers. The work will not only be produced at a lower cost but the quality will be very much better.

"There is no longer much basis for serious argument regarding the merits of plain versus automatic looms for most kinds of work. If you still have some plain looms it would pay in most instances to stop them and operate the automatics on two shifts.

"For the purpose of this discussion we will confine ourselves to the automatic looms. In the operation of this type of loom, the weaver has very little control over the quality of cloth turned off. The determining factors are quality of yarn, care in preparation, and fixing of the looms.

"As weavers usually receive the highest pay among the actual machine operators in a mill they become a very important factor when the subject of cost is considered, and we quite naturally ask ourselves what the real duties of a weaver should be?

"In any gathering of mill men where practical problems are being discussed the most frequent question asked is, 'How many looms do your weavers run on this or that fabric?' When the answer is given I often wonder whether the number has been determined by any real study of the factors which really govern the number of looms which a weaver can run efficiently.

"The average weaver seldom knows what really causes his looms to stop. In the minds of many agents, superintendents, overseers, and even the weaver on a set of looms, the principal causes of loom stoppage are considered of minor importance because the weaver can readily start up the loom after each individual stop. The aggregate of all such stops in the day's run account for a large part of the production losses.

"Experience has taught me that only those duties requiring real skill should be assigned to a weaver. The principal work of a weaver ought to be that of starting up looms properly after stops, the inspection of warps for imperfections and of the cloth for defects in quality which can be remedied at the loom. All other duties formerly considered as coming under the head of weaving should be assigned to less skilled operatives.

"If this is done after careful study of your conditions I venture to say that your weavers will operate a great many more looms at the same or increased efficiency at a lower cost and with no impairment in the quality of the work.

"There has been a vast amount of discussion in recent years regarding loom fixers. If a fixer really possesses mechanical ability, why should he break his back trucking warps the length of the weave room, lifting them into the loom, taking out leases, etc.? No mechanical ability is necessary to perform this sort of work.

"A number of mills have found it advantageous to relieve their fixers or section men from such duties and increase the number of looms per man. If a bonus, in addition to the regular going rate of wages based upon quality and quantity of work, is paid the mill will receive its share of the returns.

"Is it not about time for the up-to-date mill manager to discard the old moss-covered idea that the weave room is necessarily running fine when the fixer is sitting in the window reading the newspaper or is asleep under his bench? A real live fixer or section man working under a good bonus arrangement is up on his feet attending to the duties for which he is paid, and in a great many instances anticipates troubles before they really cause much damage.

"I have endeavored to point out, briefly, a few conspicuous places in the mill where "Studying the Job" will produce dollars-and-cents results, not only for the mill, but for the operatives as well. One of the most important points in this whole discussion is the fact that once the jobs have all been rearranged in accordance with a carefully studied plan the operatives will not work any harder than they do under the old method. The suggestions outlined are not mere theory which look well in print but are facts which have been put into successful operation by hard-headed, practical mill men. They have become an achievement rather than an aspiration.

"Is there any reason why you should keep on trying to fool yourselves that the old mill is running about as well as can be expected, when a real systematic study in the various departments will convince you that it can be made to run better? There are a great many time-honored *facts* about a cotton mill that 'would be so if they were true.'

"It would be sad, indeed, if we had reached the point where nothing further could be done in the direction of reducing costs in the manufacturing of textile products. Real progress means that we are not entirely satisfied with the way we did things last year but continually seek better and

more efficient methods of accomplishing the desired result.

"Do you suppose for one minute that your freckled-face office boy could go up town and drive away a brand new 'flivver' for $300 if Ford's organization were not eternally 'studying the job' and introducing new methods and schemes from day to day which pass the 'acid test' of lowering the cost?"

Significant Savings.

In discussing the next subject, "Significant Savings in Textile Mill Operations," N. T. Thomas, of the Nashua Manufacturing Company, Nashua, N. H., presented some interesting thoughts, saying in part:

"It is of great importance in striving for economy in the production of goods to have a good layout of machinery and buildings. In a continuous process, such as there is in the cotton mill, it is necessary to have a steady flow of material from operation to operation with no backward steps and with the minimum amount of handling. In drawing up specifications for a new mill, engineers and mill managers of today plan for a result which is radically different from the popular conception of a cotton mill. Reinforced concrete buildings with large windows replace the former brick mill construction with small windows. Dustless stripping systems in the card rooms are perfected, so that the card tenders are able to do the stripping, thereby eliminating 'strippers' who usually work only a small percentage of their time. Automatically controlled heating and humidity, result in better operating conditions and increased production throughout the mill. A 'humidifier man' in each department to look after the old system of humidifying is unnecessary, because one or two men are able to look after the entire mill, the heart of the new system being located in the basement. Individual motor drives are important aids in increasing production and in eliminating bad work due to overhead shafting troubles, and some saving is accomplished by eliminating shafting men in each department. Power floor-scrubbing outfits are means of savings, and give better results as compared with the old method of having scrubbers in each department, who usually work a small percentage of their time.

"Probably most of the long established mills move the material from operation to operation by means of hand trucks and freight elevators. Cotton storehouses in some cases are not located in the proper relation to the opening room, necessitating an auto truck with a crew of five or six men to transport cotton from storehouse to mill. In some cases, cotton is piled several bales high in the older types of storehouses, which results in extra labor and cost. Picker laps, boxes of roving and yarn are trucked to and from the elevators, and delivered by the elevator man to the carding, spinning, and weaving departments. The cloth rolls are piled on trucks and carried to the cloth room, usually at some distance from the weave rooms. This method means lap carriers, roving and yarn truckers, filling carriers, cloth handlers, and elevator men. It also means a large number of trucks and boxes, which take up valuable space and cause more or less confusion, and represent a good deal of money in upkeep.

"At the Jackson Mills, a complete conveyor system which handles the entire product from the raw cotton to the finished cloth is in operation. A good description of this system, with illustrations, written by Robert T. Kent, may be found in last April's issue of 'Management and Administration.' The bales of cotton, stored on the upper floors, are sent down a spiral chute to the opening room on the first floor. After passing through the machines, the cotton is blown through pipes to the sixth floor of the mill, where the picker room is located. The picker laps as they are made by the pickers are put into cradles on the conveyor, and delivered to the card rooms by means of a gravity-roller conveyor, a spiral chute, and a horizontal belt conveyor, from which the card tenders take the laps while the cradles are traveling along very slowly. The empty cradles continue on and are returned to the picker room on an inclined elevator. The boxes of roving and yarn are put on to horizontal belt conveyors by the machine tenders as soon as they doff their machines, these boxes traveling by spiral chutes and belt conveyors to the spinning, dressing and weaving rooms, where they are automatically diverted to unloading stations. The empty boxes and bobbins are returned on inclined and vertical elevators. The cloth rolls are put on to an inclined elevator as they are taken from the looms, and then a belt conveyor delivers them to platforms in the cloth room, which is located in another building across the yard.

"In making use of a complete conveyor system, the material in process can be moved from one department to another with marked saving in cost. In addition, the jobs are made easier for the employees, due to the special trucks which eliminate heavy lifting, and this increases the efficiency of the mill as a whole. The stock is in much better condition than in the average mill, due to the absence of trucking. There is a marked saving in the number of bobbins used in the carding and spinning rooms, due to the method of returning empty bobbins. There is constant and quick control of the amount of stock in process because the surplus, or storage, is wholly on the conveyor system.

"New methods of operation, or a rearrangement of the work, result in economy and increased efficiency. Planning the work for each department in order to eliminate unnecessary waiting for material, and at the same time, to keep always a minimum quantity of stock in process is important. It is a general practice for the overseer of each department to run a certain number of machines and to assume the responsibility of keeping the next department properly supplied. Without central control, however, there is constant fluctuation in departmental productions, friction between department heads, large stocks on hand, and decreased efficiency throughout the mill.

"One of the problems is to keep the looms in operation by providing a supply of warp yarn on loom beams. In the preparation of these beams, the judgment and experience of the overseer of the dress room was formerly relied upon to determine the right number of each kind of warp beams. The weaving department also estimated the number to be required, but it was largely a matter of guess work, because almost always there were a large number of beams on hand, but at the same time, several looms waiting for warps. A careful analysis of what the looms actually required resulted in a prepared schedule of work for the dressing department to follow. This reduced the number of beams on hand from over six hundred to three hundred and eliminated all waiting for beams. It was found that one slasher could be stopped. Friction between the weaving and dressing departments was eliminated, and the loom production was increased because the looms were kept in operation. The stock in process was reduced considerably which was a distinct advantage.

"In the card rooms, the overseer formerly determined the number of roving frames to be run to supply the spinning frames. But usually there would be too much roving on hand or the spinning room would be short. The same was true of the filling yarn for the looms. Accordingly the work of the departments was coordinated for the purpose of having the proper supply of material on hand at all times. Now the work is planned, and each overseer has definite instructions to follow as to the constant operation of a certain number of machines, and there his responsibility to the following department ends.

"Study an analysis of the various jobs in the mill, the nature of which have been determined by experience and custom, result in the development of new and better facilities for increased efficiency and significant savings. In the spinning room a study was made of the work of doffing the warp frames. There were three crews of doffers, each crew having a section of the frames to doff. At times, all three crews would be doffing, which resulted in an overflow of yarn to the spoolers. The outcome of the study was a rearrangement of the work. Special trucks are prepared in advance by yarn men, the boxes being enlarged to hold more bobbins. The work of doffing is scheduled so as to get a uniform flow of yarn to the spoolers. The crews of doffers work on larger sections as a result of this rearrangement, which greatly facilitated the work of doffing and reduced the stoppage of the spinning frames to a minimum.

"A study of the work of the men who handled the yarn and empty boxes in the spool room resulted in changing the spooler frames in order to eliminate dumping the yarn into the trays on the frames. A change in the method of passing the yarn and picking up the spools and empty boxes made the work easier for the operatives and more economical for the management.

"A study of the work of cleaning and sorting filling bobbins, returned from the weave room, resulted in building a special table, which facilitated the work tremendously. The operatives were shown the best way to sort the bobbins, and to prepare the boxes for the filling spinners, and although their earnings were increased, there was a saving in cost.

"There were several men in the weave room picking up empty bobbins from the loom-cans. Each man did the work in his own way. After a study of this work, a special truck was provided and definite instructions issued as to the method to pursue. The result was a steady flow of empty bobbins to the spinning room and a saving in the number of men. The men now take care of more looms, the work being made easier by the new truck, and by the instructions as to how to do the work.

"Standardization, as far as possible, of product, of methods, and of equipment such as trucks and boxes, is a distinct advantage in the efficient and systematic operation of a cotton mill. Constant changes in roving, yarns, or styles of cloth reduce the efficiency of the machines and of the operatives. Where one standard number of yarn and one standard number of roving and one style of cloth are made, with no changing on the roving, spinning frames, and looms, a great deal of productive time is saved. Where loom changes are frequent, careful planning is necessary in order to obtain the maximum efficiency and economy. Confusion and delay result where no standards are followed as to the size and number of boxes and trucks. At the Jackson Mills, boxes for the carding and spinning rooms are made and repaired according to standard specifications, and the trucks in the carding, spinning, and weaving rooms are of special design, carefully worked out to obtain the greatest benefit from the conveyor.

"An excellent example of standardization of work is that of the slashers. Unless a proper amount of size has been added to the yarns, they will be unable to resist the weaving action of the loom and will break. Sometimes poor warp sizing will completely tie up the production of the weave room. According to previous practice, cotton mills operate their slashers almost hit or miss, allowing the tender to operate as he sees fit under the general direction of the overseer. There is no way of exact regulation of the final size and moisture content of the warps. At the Jackson Mills, this problem was attacked systematically. A survey was made at the start to find out just how much the yarns were already being sized and how far the work deviated in quality from the proper average. Analyses were made to show these values and to indicate whether the warps were being sent from the slashers to the weave room with the necessary amount of moisture to insure good resistance to the tensional strains of the looms. After obtaining this information, the action of the slashers was carefully studied and fifteen variable factors connected with their control were worked out as the causes of poor or good work according as they might be poorly or well controlled. As a final result of this work, the operation of the slashers has been practically removed from a guesswork almost to an exact art. The overseer is able to impose on the machines the exact schedule for each grade of warps, which he knows to be proper for uniform results. The guess work element has been removed completely, because the size itself is boiled under strict control and a recording device gives a permanent record of every batch of size and shows whether it was properly boiled at the proper time and for how long. A size recirculation insures a constant supply of uniform size to every slasher. At each slasher, the size box is automatically regulated to a fixed temperature predetermined as best for the purpose. Each slasher runs at a fixed speed for a given grade of warps, the speed depending on the heaviness of the goods and certain other factors. For the control of the machines, the operative has a speedometer which is graduated in terms of the style of goods being run. If he is slashing a D warp, the machine is run with the indicator of the speedometer on the letter D, and so on. The beneficial results of this work are shown in the reduction of the fluctuations in the sizing of the warps to one-half their former magnitude. The maximum possible speed of the machines is also being obtained safely, due to the strict regulation. This results in faster production, accompanied by much improved uniformity in the product and consequently the lowest possible production cost. To one familiar with the usual uncertainties of slashing, this work will be of especial interest and significance.

"A study of the method of preparing the filling spinning frames for doffing showed that the average length of yarn left on the end of the bobbin to be pulled off by the battery girls in the weave room was sixty inches, the lengths varying from one to three yards. This great variation in lengths made it difficult to standardize the work of the battery girls as to the amount of yarn that they should pull

(*Continued on page* 183.)

Scientific Trends with a Textile Slant

Steam Economy.

The paint manufacturer preaches the gospel of freshening all buildings and preserving them from decay, at the same time improving the light qualities of interiors. His wise logic has hit upon a sound argument for helping himself by helping the solution of the problems of the mill man.

Probably more money is lost, however, from month to month, through lack of economy of the steam supply than from all other elements of the maintenance problem. Even in the southern mills, where winter temperature is not a major cause of such losses, the faults which can be corrected represent a considerable saving in operating and maintenance costs, although requiring small outlay for the changeover.

Study of the layout of pipe lines and of the service requirements of each outlet cock reveal a condition which can stand numberless corrections and changes, such as indicated below. The wonder never ceases at the policy of putting spring valves on a water faucet and letting steam cocks leak.

Item. Roundabout feed line, which exists by virture of the fact that "it was the nearest place to hook on."

Remedy. Short, direct line, of proper size pipe.

Reason for change. Installation of a short line costs much less than maintenance of an extra long one, with its radiation losses (which is usually also of improper size and capacity).

Item. Outlet cock in constant (intermittent) use.

Remedy. Spring-seating valve.

Reason for change. Minute leaks are more expensive than slightly costlier valves.

Item. Use of live steam for heating coils and baths.

Remedy. Frequently possible to employ exhaust steam or utilize (otherwise) wasted radiation of live steam lines.

Reason for change. Better control of steam supply and more economy in production of steam needed for the two purposes.

A Double Economy.

If you add five pounds of dyestuff to 400 pounds of water and boil it up until there is *perfect mixture,* then insert your stock and get it to the shade you want, you have done a good job of manufacturing. But how about the economy?

Possibly you can afford to junk the 350 pounds of water left in the tub, but *can* you afford, right along, to pour out 3 to 3½ pounds of the dyestuff, every time you run such a batch, especially if the dyestuff costs upwards of $3.00 per pound? Yet any thorough-going dyestuff chemist will tell you that this very thing is done so often as to be unpleasant to remember. The excuse is "standard practice."

Now the amount of dyestuff left in the water, even after you have "exhausted" enough of it to give you your shade, is where the wastefulness is. There are several remedial measures to greatly reduce the degree of this waste—shade control, forced dyeing, redesign of dye tubs—but the point is that the accomplishment of such reduction of waste will be found to effect a two-fold economy of costly process-materials and of labor and time in process. This is because the upshot of bringing such improved methods to bear on the process is to cut down both space occupied by the operation and time to effect a result equal to and frequently better than that obtained by the old-fashioned methods.

British analysts of our recent election comment on its its indication of "the inherent conservation of the American People." Be this as it may, the quality does not always show in our policy of dealing with one another on the job. Flare-up and intolerance too often take the place of the wiser course of a spirit of conciliation.

In the main, there is too little cause for violent revision of existing relations in working conditions to justify radical methods of bringing them about. There is much hope to be found in the increase of intelligent appreciation of this fact which the sound defeat of the radical movement indicates.

Only one type of evil justifies revolt, separation and active warfare. We had it in '76, again in '17 and it is demonstrated in the separation of all practical idealistic desire for actual accomplishment and progress which is willing to pay the price of building from the bottom rather than servile cringing before smug, presumptive insolence.

Worth.

When we read how post-election conditions react to "increase the market value of many stocks" we recall the idea we overheard a steel worker express, as he read the newspaper account of his employer's charities: "He couldn't do that if I and such as me didn't make it for him."

But it doesn't end there. Ticker values fly before the wind in crises of shortage of supply of needed manufactured articles, just as in raw materials. The raw materials we have must be augmented hundreds of times in *actual* worth if permanent wealth is to be added to industry that will reflect in general prosperity to each individual concerned. It is the ideal of the parable of the "grain of mustard seed." See what that leaves us still to do, in perfection of manufacturing methods and in improvement in decoration of the finished material, before the ideal can be realized.

When we can realize *that* degree of improvement (our part) we shall be glad enough to have the ticker expert add his little bit to the sales value of our creation.

Research.

To concentrate all the effort of a specialty upon one narrow line of product is to accept a much lower percentage of returns from the investment in that special line of effort than is justified, particularly if it be a specialty widely applicable in industry. A great many research projects are self-supporting through sale of their by-products or services over a general field, acquiring thereby an experience doubly valuable to their home industry.

Most technical men do their research work in a very narrow field—for want of organization and free rein to extend over the maximum ground of usefulness of their special ability. This fact usually sets the limit of their capabilities to achieve great things.

There is another way in which the laboratory of a single business can be universal and that is by so thorough a coverage of its own particular and competitive fields as to be the supreme authority therein. In the cases of this noted, both the laboratory and the company it serves are dominant in the industry. The formula upon which it has been accomplished is unqualified support of genius.

The Problem of Business Prosperity.

From the point of view of the cloth manufacturer and his factor, this boils down to the balancing of two ideas:

To Make What Will All Sell.

To Sell All You Make.

The important *All* ground is solved through the manufacture of cloths based upon standards of construction and finish that incorporate such properties as make them:

In large part of their total volume *always* salable.

Adaptable to as wide as possible a range of conversion (finishing) *after basic manufacture.*

Adaptable to the widest possible range of general markets.

This means:

Close scrutiny of sales field for *all lines made.*

Redrafting of manufacturing specifications to suit the above conditions of adaptability.

Stress on the perfection of a definite *science* of style prognostication.

The Budget for Welfare.

A distinction must always exist between the proportion of expenditure for actual *protective* and *corrective* welfare work and that for purely social and intellectual betterment, as it is the sum of these two which makes up the total amount of the investment which can be afforded for such activities. The experience of a very large welfare project is enlightening, by virtue of the *proportional part* found necessary to expend upon each item of caring for the actual needs of a very large number of people. This probably affords an excellent guide to how much *should* be spent on each one of these items:

Medical Care	27.2%
Relief of Sick and Needy	20.1%
Child Care	11.7%
Community Center Activities	11.4%
Medical Social Service	5.5%
Prevention and Correction of Delinquency	5.0%
Vocational Education	4.95%
Religious Education	4.9%
Collection and Administration of Funds	3.95%
Care of Aged and Infirm	2.4%
Education and Recreation of Handicapped	1.9%
Fresh Air Work	1.0%
(Figures by courtesy of Jewish Federation of New York).	100.00%

On the other hand, the increase in recreational activities, with its resultant benefits, is strongly indicative of a tendency and a proven investment value which must not be overlooked.

TEN YEARS GROWTH OF RECREATIONAL MOVEMENT.

	No. of Cities	Annual Expenditure	No. of Planned Centers with Leaders
1913	342	$5,700,223.00	2,402
1923	680	$13,948,054.00	6,601

(Figures by courtesy of Playground and Recreation Association of America.)

Rather definite figures will shortly be available as to the concrete advantages obtained through employment of such methods. Until this guide is made public the motto should be to divert to budgets for intellectual and social betterment all the expenditure that a sound financial position will stand. This has paid in every soundly-administered instance studied.

A Machine for Cleaning Card Strips.

A new system for cleaning card strips has been developed and installed in a number of mills by the Centrif-Air Machine Company, Inc., of Atlanta, Ga. The system consists essentially of a special opening picker, an adjustable cleaner and elevator apron delivery, with a small exhaust fan for drawing off the light dust from the bottom of the opener.

The opening picker is built along the lines of an ordinary mixing picker, except that it is fitted with specially designed feed rolls and cylinder teeth for the purpose of opening the stock without breaking the staple. The stock is fed onto the apron of the picker either by hand or by means of an automatic feeder. This machine opens the stock and delivers it direct to the adjustable cleaner.

This adjustable cleaner performs the function of cleaning the stock, and has several new features. The speed with which the cotton passes through is regulated by means of adjustable guides in the top of the cleaner. By means of a hand wheel on top of the cleaner, the pitch of these guides can be changed to speed up or slow down the stock in its passage through the machine, so that it may receive a light or heavy cleaning, as desired. The cotton enters at an opening in the side of the cleaner, and a series of steel work arms, in conjunction with the guides, pass it along on the surface of a cleaning screen and carry it to the delivery apron, cleaning it in the process. These blades or work arms are chisel-shaped at the ends, and are slightly staggered so as to exert a whipping instead of a direct beating action on the stock.

The elevator apron delivery is fitted with special stock carriers, the framework being heavily made and provided with take-ups for keeping the delivery belt at the proper operating tension. Where desired, it is pointed out, the elevator apron delivery may be dispensed with, and the stock discharged from the cleaner to a pneumatic suction line, stock room, or conveyor belt.

A refuse conveyor, six inches in diameter, which is under the cleaner, takes care of the foreign matter removed from the stock. It can be taken away mechanically or by hand, as desired. A fan furnished with the system, it is stated, is ample to convey this refuse up to 150 feet from the machine. In addition to taking away the dust, the manufacturers explain, this fan also counteracts the induced draft toward the screen, set up by the action of the revolving work arms, so that all materials that once pass through the screen drop to the refuse conveyor and are carried to the end of the machine. This induced draft being present in pickers and virtually all other machines using revolving cylinders or work arms for opening cotton, the advantage of eliminating or counter-balancing it, it is pointed out, is apparent.

The capacity of the different sizes of the machine ranges from 2,000 to 12,500 pounds per ten-hour day. The system is designed primarily for cleaning card strips, but it will handle also vertical opener motes and fly, picker motes and fly, card sliver, and irregular cotton, it is stated by the manufacturers, who further state that it delivers the stock devoid of curl and in condition for re-working into the regular stock.

The manufacturers have a patent pending on the system.

Texas Textile Men Meet at Waco

The city of Waco, in general, and the local cotton mills in particular, played the host for the Texas Textile Association, at its semi-annual meeting held in that place on Friday and Saturday, October 31 and November 1. The typical Texas hospitality displayed, together with the helpfulness of the practical discussion, and the commingling of the operating executives, established the success of the meeting, and forcibly demonstrated the value of the Association to the Texas mills.

There is one good thing about these practical discussions of operating executives: regardless of "how business is" there always are problems to be discussed; in fact low-tide business would seem to especially demand—if the split infinitive be pardoned—ways and means for more economical operation of the plants. That a meeting comes during a period of depression in the industry is, therefore, no hindrance to a profitable occasion for all present—and those who read the report. However, this meeting did not so occur as mills in Texas are all indicating good business.

Friday morning of the convention was spent in registration and in inspection of the plants of the Miller Cotton Mills and Waco Twine Mills—a feature adopted at all the Texas meetings. At 12:30 o'clock the delegates assembled at the Raleigh Hotel, where they enjoyed a delightful luncheon. Hugh S. Clarke, superintendent of the Miller Cotton Mills, acted as major domo, while W. H. Gibson, president of the Association, was toastmaster. After the meal, several musical numbers were presented, and E. E. McAdams, city manager of Waco, welcomed the visitors to the convention. The response was made by C. S. Tatum, superintendent of the Consolidated Textile Corporation Bonham, Texas, whose remarks were followed by some musical numbers by the Baylor University Trio. The next speaker was C. R. Miller, president of the Miller Cotton Mills, who complimented the Association upon its work and further welcomed the delegates to the city.

David Clark, editor of the Southern Textile Bulletin, Charlotte, N. C., was the last speaker at the luncheon session. Mr. Clark gave some interesting figures concerning the textile industry in the Lone Star State, and spoke briefly with reference to the proposed 20th amendment to the Federal Constitution.

After the luncheon, the Association went into business session for the purpose of practical discussion. This discussion was ably conducted by President Gibson, who is superintendent of the Waxahachie (Texas) Cotton Mills.

The first question brought up related to front roll speeds on spinning and filling wind on warp. The first response was from Joe Braley, overseer of spinning at the Itasca (Texas) Manufacturing Company, who said, "I run 168 r.p.m., on 9s yarn, with filling wind, 3-inch gauge."

"You have run warp wind?" asked the president. "Yes, a little," answered Mr. Braley, adding that he had found that a better production can be secured with filling wind build. "We ran our warp at 154, and our filling at 168. It runs so much better on the filling wind, too."

A. M. Cox, assistant superintendent at the Texas Cotton Mills, McKinney, Texas, reported a front roll speed of 152 r.p.m., on 10.50s yarn, with a one-inch front roll and three-inch gauge frame, using filling wind.

Mr. Cox was asked what increase in speed was secured in changing from warp to filling wind. "There is a big difference," he replied. "We went up from 137 to 152. There is a noticeable improvement in the running of the work, also; for one reason, now when our frames get full they are at the top ready to doff, while with the warp wind it traveled from the bottom to the top of the bobbin."

Another man reported a front roll speed of 156 r.p.m. on 9s yarn, with a 1⅞-inch ring and 2¾-inch gauge, on warp wind; he having had no experience on filling wind. E. L. Sord, overseer of spinning at the Miller Cotton Mills, Waco, said they run 8s at 180 r.p.m.; 9½s at 164 r.p.m.; and 13s at 145 r.p.m. with filling wind, with a 3-inch gauge frame and a 2⅛-inch ring. Mr. Clarke, of the Miller Cotton Mills, added that in changing from warp to filling wind, they had secured an increase of approximately 8½ per cent in speed.

S. L. Bolton, overseer spinning, Dallas Textile Mills, said he runs 145 r.p.m. front roll speed on 14s yarn, with a ⅞-inch front roll. S. C. Cain, superintendent, San Antonio Cotton Mills, announced a speed of 142 on 12½s yarn, 2⅛-inch ring, 3½-inch gauge, with filling wind, adding that he lacked the proper pulleys. He stated that he had just placed an order for smaller bobbins, which he believed would be an advantage with the filling wind. An advantage of the filling wind, he said, was evidenced by his frame running 25 minutes longer on the doff, using the same bobbin on filling wind as on warp.

Mr. Sord asked whether a change in the bobbin would affect the traveler, and Mr. Cain explained that it would be necessary to use a lighter size traveler.

"As a matter of information," in connection with the filling wind discussion, Mr. Tatum, of Bonham, said, "we have made two or three different tests on it, on 22½s warp, and we ran one of these tests some three or four months, and finally came to the conclusion that it did not help us at all. In the first place, we did not change the type of bobbin, and I understand that those who have made the most improvement with filling wind have changed to a cone-shaped bobbin. We did not because we had such a big supply of the older type on hand. Also, we have the Draper No. 2 spindle, which will not stand such high speeds. Our tests showed we did not get as good results with the filling wind as with the warp wind, but I believe when we get the right shape of bobbin and change the spindles that we can change to filling wind advantageously. You must have everything favorable before filling wind will improve the work as much as it should."

'I think Mr. Tatum is wrong," declared David Clark, of Charlotte, "for the Cramerton Mills at Cramerton, N. C., changed bobbins and they tried every type of bobbin they could find, and eventually went back and adopted the regular warp type of bobbin for filling wind, and they have made a tremendous reduction in the amount of hard waste."

"When we changed over, we were forced to change over because on the equipment furnished we were running too fast a speed, and so our change was more of a defensive measure," stated Hugh Clarke, of Waco. "After the change we found it not only solved our problem, but effected a great saving for us. The bobbin we have found best is

smaller in the center, and the same size as the warp bobbin at the ends, with the cone at the bottom. This has eliminated more than a half of our hard waste."

Dan H. Poole, superintendent of the Sherman (Texas) Manufacturing Company, was called upon, and said that "my story is an old one, for I have been an advocate of filling wind spinning for ten years. You all have heard me talk about it, and I do not know that there is anything I can add at this time. My experience on filling wind has been very satisfactory. We changed over in 1916, and it has been so long that I have forgotten all the details of the improvement. However, we increased our front roll speed from 152 to about 178 and 184, on an average number of 10s, and on some frames I put it up to 200, and I am running some on 6s at about 230.

"I tried out a number of different types of bobbins—a dozen or more, I guess—and made some myself, and we have adopted a bobbin that is giving us very satisfactory results. It is very much on the same order as Mr. Clarke's here at Waco, with the exception that it is not smaller in the center. My bobbin is the same size from the end down to the base, and then it is cone-shaped.

"I do not just remember the exact percentage of saving made in waste, but it was something like 50 per cent, both on the spooler and at several other places. Other than to say that I am an advocate of filling wind on coarse numbers, I don't know that I am able to add any more than my own experience. I am a strong advocate of filling wind."

Grover C. Dilling, superintendent of the Brazos Valley Cotton Mills, West, Texas, also advocated filling wind, saying he had secured much better running work. "We did not increase the front roll speed, but we made some other changes at the same time which allowed us to put more yarn on the bobbin, using the same kind of bobbin. I think when you get to figuring it out, mill for mill, that with the new mills that are starting up, well equipped with filling wind, you could not induce them to go back to warp wind because they get less waste and better running work."

In response to a general question from the chair, Mr. Ford, overseer spinning, Dallas (Texas) Cotton Mills, announced they had changed from warp to filling wind and had gone back to warp wind, retaining the higher speeds secured during the change. He said his trouble with filling wind was in the spooler room, where he could not get as many wraps on the spool; and where the yarn would choke up and make a lot of soft spools. He added in response to questions that while he left the front roll in the spinning at the higher speed, he cut the spooler speed back to where it had been when he returned to warp wind. He said he had not changed bobbins.

The next question was the spindle speed of spoolers. Mr. Ellison, of Waxahachie, said theirs run 720 r.p.m. on warp wind, running 13s to 10½s yarn. Ford, of Dallas, reported that he got 1250 on filling wind, and uses 925 on warp wind. Cain, of Dallas, runs his 1100 r.p.m. on filling wind. Sord reported 750 on a small spool, at Waco, with filling wind. Bolton runs 940 on a short spool at Love Field, Dallas. G. V. Crosby, overseer of spinning at Cuero, reported 725. Cox, of McKinney, runs 750 on a 4x6 spool with filling wind.

"We changed ours from 650 to 1100 in going from warp to filling wind," reported Mr. Dilling. "I think it is generally understood that you can double your speed on filling wind."

"I threw out the old spoolers running 750 and run the new ones around 1400," said Mr. Poole.

Mr. Clark, of Charlotte, stated that several of the mills in the Carolinas had thrown out spoolers as a result of going onto filling wind, thus greatly reducing their labor cost. He stated that one mill in Charlotte had increased the front roll speed on 40s by 12 turns, effecting a notable production increase.

"What method do you use in setting spooler guides, and what distance do you set them?" was the next question asked.

W. B. Elliott, overseer, Corsicana (Texas) Cotton Mills, stated that, "I use a card gauge in making my settings. I use the 10/1000 leaf and the 12/1000 leaf, which gives me a setting of 22/1000." This is on 13s yarn, using the Saco-Lowell and the carding type or McColl guide, he replied to a question.

C. H. Warren, of the Draper Corporation's Atlanta office, was asked for information on setting the McColl guide. Mr. Warren replied that the setting was more open, that they are not set quite so close, and that while he could not give the exact setting, his company, in "Textile Texts" supplied this information for the different yarns.

Mr. Gibson asked for experiences in changing types of spooler guides, and Mr. Elliott replied that, "I changed to the locking device type which I like very much. It has a sort of a set-screw affair on it, and you set it with a wrench."

"How often do you go over the guides?" asked President Gibson. "On this locking type," said Mr. Elliott, "I don't have to go over them but once, and then they stay set; the others I go over about every six weeks."

In connection with the McColl guide, H. E. Runge, of the Draper Corporation pointed out that "you can set it and it will stay there, and it cuts out slugs in the yarn."

"We have the McColl guide," said Mr. Tatum, "and we find it necessary to re-set them every Monday morning, with a card gauge."

"Why?" asked Mr. Elliott.

"Well, the spools will drop on them, and the spooler hands will get them out of fix," answered Mr. Tatum, who added they use the recommendations given in "Textile Texts" in making their settings.

Mr. Moore was of the opinion that there should be a set rule or standard, declaring he uses the diameter of the yarn run plus half its diameter for making this setting. Mr. Runge explained, however, that there could be no set rule, as on the McColl guide different teeth are used, finer teeth for the finer yarn, and hence no arbitrary setting could be established.

Mr. Clarke, of Waco, decleared that his practice is to take one bobbin of yarn, run it through and set the guide as close as his judgment will let him, to prevent slugs from going through; then he determines this setting with a card gauge, and sets all the other guides accordingly. This, of course, necessitates re-setting for different numbers of yarn, but is the most practicable way he has learned of, he declared. Mr. Sord, his overseer of spinning, said they use about a 10/1000 gauge for settings on 13s, and about a 12/1000 and 7/1000 for 8s and 9s. Using the standard Saco-Lowell guide.

"You can't set the McColl guide that close," interpolated Mr. Tatum.

"That's about the system we use," added Mr. Ford,

"taking a 7/1000 gauge for 11s. If I change only one number in the yarn I do not make any difference in the setting of the guide, but if the change is two or three or four numbers, I do." Mr. Sord explained that they keep one spooler on 13s, and three spoolers on the other numbers, all the time.

"We have the Saco-Lowell locking device guide," said Mr. Bolton, of Dallas, "and I use a 19/1000 card gauge setting for 14.80s yarn. If I were to change from that to 8s or 9s I would open up on the setting. My experience has shown me, though, that that is about as close as I can set it for my numbers."

J. V. Hunt, overseer weaving, Brazos Valley Cotton Mills, West, Texas, told of a peculiar experience when he had gone to the spinning room, after receiving a lot of slugs in the yarn, and had found the guides open to about ⅛ of an inch. He asked the spinner why he did not set them properly, and received the reply, "If I set them down to where they ought to be, I wouldn't have a spooler hand by night."

"What do you do when a guide wears down a little bit?" was the next question, asked by Mr. Poole.

"I happened to have a case of that kind," responded Mr. Clarke, of Waco, "where the yarn, running on the guide in one place, hollowed it out. I took the guide out and trued it up with a file so it had a smooth surface. We have only had just a few of these, and that is what I do with all of them."

Mr. Poole said he changes spooler guides every two years, and has never tried filing them. Mr. Cox said that at McKinney he uses glass guides which do not wear. Another man mentioned that the wear should be on the rod, and his practice is to give this a quarter-turn when it becomes worn.

The president next asked, "At what speed do you run the cylinders on beam warpers?" Mr. Elliott reported a speed of 35 r.p.m. on an 18-inch diameter cylinder, running 18s yarn. "Have you ever tried any other speeds?" asked the chairman. "I have run higher," Mr. Elliott answered, "but we got some more warpers and I cut the speed down and found I got better work." Mr. Cox reported 52 r.p.m. on a 14-inch cylinder, 10½s yarn. Waxahachie runs 38 r.p.m. on an 18-inch cylinder, 9s yarn. Mr. Bolton said they run 50 r.p.m. at Dallas, with a 15-inch cylinder, on 14.50s yarn. Responding to a question, he said they had tried a higher speed, but the size of the spool would not let them do it. Mr. Ford reported 52 r.p.m. on 11s to 7s yarn. Mr. Cain, of San Antonio, said he runs his warper beams 186 r.p.m., with a 15-inch cylinder, but has to do it to keep up. Mr. Crosby reported a speed of 41 r.p.m. at Cuero. Mr. Sord, of Waco, said he runs the 15-inch cylinder at 51 r.p.m.

W. C. Cole, a visitor from Monterrey, Mexico, spoke briefly at this point, describing some of the conditions found in the operation of Mexican mills.

The chairman then called upon D. D. Towers, who had recently come to Texas as manager of the new Worth Mills, at Fort Worth. Mr. Towers said that "for my own guidance I have made quite a number of tests on filling wind, and I have come to the conclusion that it depends on what you are trying to make, what your yarn goes into, as to whether or not filling wind will give you results. If you are trying for maximum strength on coarse yarns I don't believe it is quite so good. We could not get it to prove so. We took some roving and spun it on one frame with filling wind at a slight increase in speed, and then moved over to another frame, with some of the same roving, using the same twist, and spun some yarn on warp wind, and reeled off every bobbin and broke each skein. The filling yarn showed a more uneven and a less average break. We tried every kind of bobbin and finally settled on and ran for a long time, a warp bobbin with a slight increase, about 1/16th of an inch, at the top, with no cone." He stated that they evolved a motion with a warp cam and a filling builder, a 4½-inch stroke on the bobbin, which started at the bottom and gradually built up to the top. In New Bedford, he said, there are mills running warp and filling wind on fine yarn. On tire cord, he said, he uses a smaller ring, with a 7½-inch traverse, filling wind, 1¾-inch ring, spinning 23s, with a front roll speed of 140 r.p.m. and a twist factor of 4, and as little tension as possible.

Mr. Towers then added that, "there is another feature I would like to get some of you men to experiment with, and that is to weight the rolls on the spinning frame on the Continental system, which is with the self-weighted middle roll that has no weight on it. You change the break draft on the back and middle rolls from 1.08 to 1.20, and set the middle roll up close to the front roll so that the stock being run will be 1 1/16 inch longer instead of shorter than the roll distance, and let your stock pull under that roll, which must be highly polished and not covered. Take out the back saddle and bridge the middle roller."

Mr. Cole said in this connection that by using a heavier back roller than ordinary, by using the self-weighted middle roll which was a highly polished steel roll about ½ inch in diameter, he had gotten his best results.

Mr. Cain said he uses the self-weighted middle roll, and wouldn't have any other kind. He said he runs a range of numbers from 4¾s to 13s, and while a radical change in numbers would necessitate a different weight middle roll, he would not change the roll for a slight change in the number.

Methods of cleaning beam warpers were next discussed briefly. It seemed to be the common practice through the state to blow the warpers off after each run-out with compressed air, and to clean off with rags and waste. Mr. Tatum expressed the opinion that the difficulty in cleaning off with air was that while the warper that was stopped might be cleaned all right, the lint and waste was blown onto the one next to it. He and Mr. Clarke agreed that the use of compressed air was a "snare and delusion." Mr. Runge explained the use in some mills of a fan located over the warper which continually keeps the drop eyes blown out.

The percentage of variation in the weights of warper beams was next brought up. Mr. Chappell said that on 11.80s yarn, beams supposed to weigh 380 pounds would vary between 379 and 381 pounds. Mr. Elliott reported an average variation of 2¼ per cent. Mr. Clarke said he would not stand for an average of more than four per cent. Mr. Hunt stated his variation runs between two and three per cent.

Next discussing the causes of the variation, Mr. Elliott declared that in his opinion, high speed at stopping and starting was a contributing factor. Mr. Cox said he believed a big cause is in having the indicator set incorrectly by the warper hands.

"Have you ever tried running a set from one warper?" asked the chairman. Mr. Crosby reported he had tried this, but that the variation was about the same.

Mr. Bolton told of noticing his measuring roll run for about a turn and a half after the warper had stopped. To remedy this, he said, he put a weight on the roll that acted as a friction brake and that he experienced no more trouble. "That's just the opposite of the ball bearing theory," observed Mr. Tatum.

Another man expressed the opinion that having some spools full and some spools empty or nearly so in the creel would cause uneven run-outs.

Mr. Runge pointed out that many mills had attributed this difficulty to slippage in the measuring roll, and described a comparatively new warper with a fluted cylinder which is used as a measuring roll, declaring that certain mills had found that their waste was cut down considerably by the use of this method.

A good practice in remedying this evil, declared Mr. Tatum, is to keep notice on which warpers are furnishing the warps that run out unevenly, and work hard on these. He said quite a bit of his own trouble in this direction had been caused by faulty setting of the clock; that he found it necessary to set the clock differently at times.

The meeting adjourned, following this discussion, to reconvene for a continuance of the discussion at 7:30 o'clock on Friday evening.

Evening Discussion on Slashing.

The discussion was resumed on Friday evening at 7:30 o'clock in the second session of the convention, held in the assembly hall of the Chamber of Commerce Building. At the opening of the session, President Gibson called upon R. W. Philip, associate editor of COTTON, Atlanta, who spoke briefly, following which it was announced that R. W. Philip and David Clark were official delegates to the meeting from the Southern Textile Association, and brought the greetings of that organization to the Texans.

Subjects relating to the slasher occupied the major portion of the discussion of the evening, which was led by C. S. Tatum, of Bonham.

The first question was, "How do you determine the percentage of size you are putting on your warps?"

J. V. Hunt, of West, when called upon, said that, "I have run jobs where they weighed all their beams, but we do not have any scales for the slasher. I take two threads on the edge and run them through the size box and go around all the rolls except the immersion roll. Then I take two ends of unsized yarn, weigh them on the yarn scales, and figure the percentage."

"We take the beams, the section beams, and weigh them, and then take each loom beam and deducting the amount of waste from the set, figure the percentage," said Mr. Chappell, of Dallas. "On a week's run we figure the amount of compound, the amount of starch, etc., that we use, and figure the percentage put on, too. We do this on every set that we run."

"Our method is practically the same as Mr. Chappell has just stated," added Mr. Poole, of Sherman. "We weigh the section beams from the back of the slasher, and then weigh the loom beams as they come off, taking the total weight of the section beams and the total weight of the loom beams. We keep a record of every set."

A vote taken here indicated that eight of the mills represented use this method in weighing the beams.

"What percentage of variation do you have on loom beams?" was next asked by the chairman. "One-half of one per cent, according to my weighing, on two sets the same day," reported Mr. Hunt. Mr. Cox, of McKinney, said that his runs between two and five per cent. Mr. Poole stated that his extreme variation was five per cent, approximately. "We had a total variation of four per cent in two weeks from the lightest to the heaviest," added Mr. Gibson, of Waxahachie.

"I am going to testify," said Mr. Tatum. "We keep a record and just before coming down I was looking over a record of four weeks, and I found some that varied ten per cent. I would hate to think that we are that much worse than the rest of you, but we vary frequently as much as ten per cent between the lightest and heaviest beams.

"There are a great many factors that affect the weight of the beams. There is a whole lot in how much you dry the yarn. The yarn numbers will vary from three to six per cent. Using size out of a full kettle and then out of an old one will also affect it."

Mr. Gibson said that in making investigations as to the cause of the variation, he concluded that a large part of it came as a result of inaccuracy in weighing on the part of the slasher man.

"The speed of the slasher has a whole lot to do with it," added one man, "as well as improperly dried warps."

Mr. Tatum made the statement here that it doesn't make any difference at what point the immersion roller is run, and found several that disagreed with him. "I have run it as high as I could, and as low as I could, and I have kept the weights on the beams," he said, "and there would not be a bit of variation as a result. I have done it week in and week out. The depth of the immersion roller does not affect it at all. If there is anything I feel I do know, it is this point." He added that the proper way to operate the slasher is to have the yarn hit the roller just before it hits the size.

H. C. McKenna, overseer weaving, New Braunfels, Texas, who uses potato starch, with a circulating system, on 30s warp, said he had found the depth of the roller did make a difference; in running a warp of 600 ends of 30s, that if he ran the roller down it would "smash" the warp, and he would get what is called a "false dressing."

Mr. Tatum pointed out that of course if the roller is run all the way down the result will be more lumps on the yarn which will come out in bunches. "You want to have it so the yarn hits the roller before it hits the size. If it hits the size first the size will stick the yarn together and make it come through in bunches which will make it harder to spread on the lease rods on the front."

"Does the amount of twist in the yarn have any effect on it?" was asked from the floor.

"Absolutely," replied Mr. Tatum. "The more twist you have in the yarn the less size you can put on. The softer the twist the more size you can get it to take up."

The chairman called upon Mr. Warren, of the Draper Corporation, at this point, who declared that "my observation has been that most men who have charge of the sizing of the warps do not follow up their work closely enough to see that the man doing the work does it as well as he knows how." He added that his main object in calling upon the mills is to see that the people who have the work to do are doing it as well as they know how. He said that oftentimes a man will, in all earnestness, begin a test on sizing, and then before it is finished, will pass on to something else and neglect the first experiment, thus making it impossible for the best results to be secured.

Other things that will affect the variation, Mr. Tatum next pointed out, include different weights of squeeze rollers, a difference in steam pressure, difference in blankets, etc. He said some mills used a burlap on the roll the yarn hits first after leaving the box, but that he would not want to try it on sheeting numbers, although undoubtedly it would be cheaper from the standpoint of roll covering.

"This matter of steam on the cylinders, in my judgment, can be studied to better advantage than any other one point," he continued, "and by running too much steam on the cylinders, we are creating one of our biggest evils. I have been able to greatly improve my work by running my cylinders cooler, and I believe other mills can have the same experience. If you run a warp wet it will show up on the slasher man, and it is just human nature for that man to be certain he gets the warps 'plenty dry.' Take that warp when it goes into the weave room. That moisture never gets back in there. I think we all could profit by paying a little closer attention to the drying of warps—dry them just dry enough to where they will not stick. We run them so damp that they will not draw in well—and when we get to the last cut mark we slow the slasher down and let it dry enough to be drawn in. I think 99 out of 100 mills are running too much steam on the slasher cylinders; at least that has been my observation."

"What is your method of running lease strings, and how often do you run them?" was the next question.

"We run them as often as necessary," responded Mr. Poole. "Sometimes we run an entire set out and never make a lease. It depends on how well the warper tender runs the beams."

"We run them just before we doff," said Mr. Chappell.

"You do not run them except just before you doff?" asked Mr. Tatum.

"Unless it was a bad break-out, we wouldn't," answered Mr. Chappell, "and we always run our lease strings in when shutting down the slashers at noon and at night."

"By the way," asked Mr. Tatum, "how many run the slashers through the noon hour? A few, I see. Well, I think it is a mighty good plan. I think every mill could profit by it. There is much to be gained by it."

The chairman called for a statement from Mr. Towers in connection with this discussion. Mr. Towers, while he pointed out it had been several years since he had made goods requiring slashing, stated that "last Fall I was in a mill in the Carolinas that had been doing a lot of experimenting along these lines. They had put in a device that their master mechanic had rigged up, consisting of a sort of thermostat that was located right in between the large and small cylinders on the slasher. There were three rods made of such a metal that would contract, and the steam pressure was controlled from that point. They kept experimenting until they determined just what was the proper temperature. As the temperature would cool, this device would open up the pressure and give more steam. They claimed they saved 25 per cent of their steam and that the running of the work was improved fully 50 per cent. They found they could run the warps lots damper and still get better work, and at the same time prevent their being too damp. This attachment, I think, is now being made by one of the specialty companies, and I think it is well worth investigation.

"I think Mr. Tatum is right on the position of the immersion roller. The proper relation between the gearing of the squeeze roller and the cylinders also has a big effect on it. If the gearing is not right the yarn will be stretched, and you cannot tell what kind of dampness you are getting."

Mr. Towers added that his method for figuring the percentage of size applied was to base it on the cloth leaving the cloth room, as that was what counted, after all. He said that by this method they had found quite a variation in the weight of the beams, which, it was explained, was probably due to excessive chafing off on the loom.

Mr. Gibson stated he had seen the device described by Mr. Towers in operation in a Carolina mill, and had noticed that in some instances the steam pressure was as low as five pounds, which was drying the yarn thoroughly.

In response to the next question, "What steam pressure do you run when sizing 8-ounce duck warps?" it was indicated that Mr. Poole runs 11 pounds, Mr. Clarke runs 17 pounds, Mr. Cain 12 pounds, Mr. Hunt 12 pounds.

Mr. Dilling told at this point of a slasher that recently had blown up at his plant. He said he had found the cause to be a piece of composition disc which had worked down into the valve and would not let it close.

Mr. Clarke said he had found that the reducing valve can be depended upon to operate only while the slasher is operating. He said he had had a slasher explosion, which had been caused by the man leaving the slasher room, and failing to shut off the supply valve; although the reducing valve was closed as tight as it would go, the steam came through gradually enough to cause the cylinder to blow up.

"I would like to ask a question," said Mr. Tatum. "I know of a mill that has a supply valve and reducing valve in addition to the one that came with the slasher. What do you think of that?"

"It isn't worth anything," said Mr. Clarke.

"Then what kind of safety measures can we take?"

"Shut off the steam when you stop the slasher."

"At the same time," contended Mr. Tatum, "it does seem to me that we should put in that extra one as a double precaution."

"Up until the time of our explosion," said Mr. Dilling, "we had boiler pressure up to the diaphragm valve, but since we have only 40 pounds, and while there is a variation in the boiler pressure, we find a practically constant pressure inside the slasher room now."

David Clark at this point told of some experiments made by W. B. Williams, of Greenville, S. C., and reported at the Southern Textile Association meetings, which showed a difference in temperature on the two sides of the size box—that a higher temperature prevailed in the side from which the steam was entered. Mr. Clark explained that this was overcome by changing the number of holes in the feed pipe, so that an equal temperature was maintained across the size box.

Next was a brief discussion of the hot air slasher described in the September number of COTTON. R. W. Philip briefly explained the principle, but none present had had any experience with the machine. It was pointed out that an important claim for the machine was that it delivered a round, full yarn that was not flattened, as is the case with a warp from a cylinder slasher. Mr. Tatum replied that he had examined, under a microscope, yarn sized on a cylinder slasher, and had not been able to find any flattened effect from the drying.

The next point discussed was the use of the Morrell

comb on the slasher, prompted by the question, "What advantage do you find in the inclined teeth in the slasher comb?"

Mr. Runge explained this, saying, "As most of you know this has two sets of teeth, one set is straight up, and the other is on a slant. The purpose of this slant is to keep the ends coming forward in regular sequence. In other words, the ends coming from the cylinder have a tendency to roll over one another and become tangled, and the slanted teeth have a tendency to hold them out flat as they come forward onto the loom beam."

"I have heard it stated that with this comb you can get two or three cuts more on the loom beam," added Mr. Tatum. "That is pretty good evidence that it does its work."

"What is the average life of a blanket on the squeeze roll?" the next question, brought the following answers: Two months; three weeks; one month; five weeks; four weeks.

"If you keep the blanket washed well it will make it last longer," observed Mr. Chappell.

The following lengths of blankets are used, it was indicated in response to a question: 3½ yards; 3 yards; 3½ yards; 3 yards; 3 yards.

In discussing kinds of blankets, Mr. McKenna said he uses a blanket with a wool filling and a cotton warp on the back roll, and an all-wool blanket on the front roll.

Mr. Tatum mentioned the use of a "mote cloth"—a piece of four-yard sheeting—on the roll, saying that it had a two-fold advantage, that it picks up a great deal more of the motes than a regular blanket does, and that it makes the blankets themselves last longer. He uses it on the roll nearest the cylinder.

At Canton, Ga., said Mr. Towers, he used, on indigo denims, a special flannel with a cotton warp and a wool filling, which gave best results.

The percentage of size applied to eight-ounce duck warps was next asked for. Mr. Poole said he puts on 14 per cent as an average; Mr. Gibson applies from 12½ to 14½ per cent; Mr. Dilling uses 12 per cent; Mr. Cain 12 per cent; Mr. Chappell from 13 to 17 per cent. Bonham applies 20 per cent.

"What effect does it have on twine harness to have it stored in a weave room carrying a high humidity?" asked Mr. Clarke.

"It is not a good idea," said Mr. Tatum, "I think we are all agreed on that."

"But what effect does it have?" asked Mr. Clarke.

"Well, it will make it soft, and the cotton will rot."

S. P. Rakestraw, southern agent, Seydel Chemical Company, was asked for some remarks on slashing. He said that one thing that caused trouble in slashing was running with too much tension. "I believe in running it just as slack as you can to get it through. Undue tension works the same as hard twist in getting it through the slasher."

"Suppose you had a slasher that was stretching the yarn too much," asked Mr. Tatum, "what would you do?"

"I would take off the tension on the back beams," said Mr. Rakestraw, "by the use of ball bearings."

Mr. Tatum said he had that difficulty, and that finally he took out the cloth off the roll which pulls the yarn from the size box to the beam. This not being sufficient he afterward took out the roll and took it to the machine shop and turned off about a ¼-inch of the diameter, and that afterward it worked satisfactorily.

In discussing the prevention of tension, Mr. Hunt suggested that the "draft" between the rolls be carefully watched.

Mr. Rakestraw made the point that he had noticed the steam pressures carried in Texas mills on slashers were much in excess of those used in the Carolinas and Georgia. "I went into one mill over home," he said, "that was using only about one and a half pounds pressure, with a maximum of four and a half. They told me they had used as high as nine pounds on a very heavy warp. If you have a slow speed on the slashers with a low steam pressure you will never have any trouble drying the warps."

"But their numbers are finer," said Mr. Gibson. "Yes, as a rule," agreed Mr. Rakestraw, "but a mill in my home town uses a pressure of four and five pounds as a maximum on 14s yarn."

"At Bonham we run 22½s and 9s warp, and on the sheeting we use two and three pounds, and eleven and twelve on the duck."

It was also brought out that the kind of steam used determined in a measure the pressure, whether the steam was dry or wet.

A question as to the speed of slashers brought out practices ranging from 18 to 26 yards per minute, with the average around 20 yards per minute.

"What do you do with size left over at night?" was next asked. Several men stated they dump it in the sewer, while others held it was not economical to do this. Some of the men said that with the circulating system, they pump it back into the kettle for use the next morning with a little strengthening. Mr. Tatum reported a saving of $200 a month by doing this, over the old method of running it out at night. Mr. Chappell, however, brought out that an advantage in running it out is that the kettles may be washed each night, thus eliminating brown spots which he said he found when running the size back into the kettle.

Mr. Tatum said he found once a week often enough to clean out the box. Copper lined kettles were recommended by Mr. McKenna as an advantage in keeping size.

A general question at this point indicated that only two mills represented prefer, or use, thick boiling starch, the remainder preferring the thin boiling type.

Mr. Cain, of San Antonio, presented for inspection a loom harness that had worn severely after a short running, and asked for suggestions. Mr. Sord said he had once had the same difficulty and had overcome it by using a mail-eye harness. Mr. Gibson stated that improper setting of the whip roll would make an uneven tension and cause undue wear on the harness eye.

A brief discussion of the relative merits of warp-drawing-in and warp tying-in machines for use on duck and osnaburgs, which concluded the evening session, brought to light the fact that the majority of the Texas mills use the drawing-in machine for this work where hand drawing-in is not practiced.

The meeing was adjourned about 9:30 o'clock, and, it being Hallowe'en night, some few of the men went out into town to join in the revelry of the occasion. The rest of us returned to the hotel and went to bed—early.

The Saturday Morning Session.

A brief session on Saturday morning brought the convention to a close. McKinney, Texas, was selected as the meeting place for the Spring meeting, upon invitation from

J. C. Cosby, superintendent of the Texas Cotton Mill Company, at McKinney.

At the morning session, a report was made by the committee appointed at the Waxahachie meeting to confer with the director of the textile department of the A. & M. school, with reference to suggestions for the curriculum of the textile school. The chief point in the recommendations was the suggestion that more attention be given to research work at the school, and it was reported that the school is working along this line.

A brief discussion on loom speeds indicated the practice to be similar to that of the mills in the southeastern states.

Another discussion of the human element led into some suggestions with reference to loom fixers. Several of the men present felt that present-day practice in mills does not place sufficient responsibility upon the loom-fixers, second hands, and other subordinates, and thus their power of initiative and industry is not fully developed. Regular meetings with sub-foremen were recommended as a help in this direction.

After the selection of McKinney as the next meeting place, the convention proper was adjourned. Some of the men returned to their homes on Saturday morning, but a large number remained in Waco Saturday afternoon to witness the annual football game between Baylor University and Texas A. & M. Saturday evening was spent by those who remained in visiting the Texas Cotton Palace, a most interesting display of Texas products.

High Speed Automatic Loom Development*

BY CLARE H. DRAPER.†

Most interesting things have a history. The high speed automatic loom has a very short one. Some two and a half years ago I was engaged in the effort to sell our standard Nordray loom to a well known and successful cotton manufacturer only to learn that he was not interested in automatic looms of any kind as he was a large user of plain looms and believed that he could get better results by their use. On being pressed for the reasons for this belief, he very kindly gave them to me in considerable detail.

Among these reasons were two of considerable weight in his mind, and at that time and under the circumstances, I was in no position to meet his arguments. It seems that he was very fortunate in being able to secure an ample supply of specially skilled plain loom weavers, and that with these weavers he was able to run his plain looms successfully at a speed considerably higher than was recommended for automatic looms. It is not surprising that I left this gentleman with the firm determination to destroy, if possible, what I might call his "alibi" by attempting to develop an automatic loom that would run as fast or faster, and produce as much or more cloth than any plain loom on similar goods.

At about the same time, we had a regular sample Nordray loom operating in a mill, which was equipped with a certain type of anti-friction bearing. The manufacturers of this bearing, believing that the bearing alone would permit of high speed, obtained permission from us and from the mill management to try the experiment. The loom was therefore speeded up from a recommended speed of 160 picks per minute to 200 picks per minute. We heard that it was run for a week at that speed without satisfactory results and was then reduced to normal speed.

I went to the mill to investigate, and was referred to the loom fixer. When I asked him his experience with the loom at high speed, he threw up both hands and certainly gave me an ear full. His story, when separated from the excess of profanity, seemed to indicate that the loom had given him more trouble than the rest of the whole section. It was a story of breakage and repair; broken picker sticks, lug-straps, pick arms, parallels; worn shuttles, pickers and binders.

I have long been familiar with the common experience that too high speed on looms gives less production than a lower speed, but this experiment gave me a reason for it. If a loom is weaving continually, it will make product in proportion to the speed, and if it makes less production, it will show that there has been stoppage for some cause. This fixer's troubles showed me that the cause of lessened production at high speed might well be the need of fixing rather than any increase in yarn breakage.

I had some ideas on how to overcome some of these troubles, and it was not long before we had a loom equipped with some of these devices running in our experiment room at 200 picks per minute. One day the loom banged off with the shuttle in the shed and on starting it up we found some of the teeth of the main driving gear broken off. This happening, together with the earlier experience, showed us that the jars and shocks of a loom are increased by high speed, and that they must be reduced or provided against in some way. At this point, Mr. Jonas Northrop became interested in the matter and we have worked together on every problem involved ever since.

About a year later we sold 16, 40-inch high speed looms to a mill and these looms, in continuous operation, have proven the advantage of some of our first ideas and the impracticability of others. As fast as some device gave trouble we have attempted to design a remedy, and our present high speed loom is the result to date. No doubt there is still room for improvement, and we shall continue to work along that line, but we feel that our present result is well worthy of investigation by possible loom purchasers.

At this mill, a count of broken warp threads made by the mill people and not by ourselves, on these looms at 200 picks per minute, and another set running at 155, showed slightly less warp breakage on the high speed looms than on the low speed looms in the same period of time. This, of course, was considerably less breakage per yard of warp woven at high speed. Such a result may seem fanciful and impossible. I can offer no explanation except that it may be that at high speed the yarn does not have time to break. However that may be, I am convinced that using ordinary counts of yarn the warp breakage should not prevent a considerable increase of production.

At present, we believe that a forty-inch loom should be able to stand a speed of between 180 and 200 picks per minute, depending upon the weave or other mill conditions. We have run single looms on filling sateen, 38s warp and

* An address before the Greenville Section of the American Society of Mechanical Engineers.

† Treasurer and General Manager, Hopedale Mfg. Co., Milford, Mass.

30s filling, 112 picks per inch and 64 sley, as high as 235 picks per minute with no serious difficulty. We would advocate that the loom be started up at about normal speed until the bearings have been "run in" and the power required brought down to a minimum.

If a speed of 200 picks does not seem particularly high to those who have seen or heard of plain looms running faster than this, it should be remembered that all of our experiments have been made with a standard automatic shuttle carrying an eight-inch bobbin such as is used in the latest automatic looms at normal speed. Such a shuttle is heavy, hard to pick and difficult to stop, and it requires a larger shed opening and consequently a greater throw of the lay crank than high speed plain looms using a narrow, light shuttle with a short bobbin.

Now, what have we done to accomplish the result? Nothing radical. We have largely followed the dictates of common sense, and yet to do this required considerable thought and some invention. You can imagine, perhaps, how many devices have been tried and found wanting, how many have shown good results, but which developed some insuperable difficulty in another direction; how many seemed finally good, but were superseded by something better.

A loom is perhaps the most unmechanical machine in large use. It is not positive, as half of the time one of its most important elements, the shuttle, is flying through the shed under momentum and entirely without other control. It is full of reciprocating parts working up and down, from side to side, and from front to rear and vice versa; all of these parts set up strains and vibrations and involve problems of momentum and inertia, the difficulties of which are increased about as the square of the speed.

To take care of these increased strains, we had originally a heavy, sturdy loom frame. We made it still stronger by using ½-inch bolts throughout in place of the standard 7/16-inch. When smaller parts broke, we redesigned or strengthened them.

To take care of the great shock of "banging off" when the shuttle is not properly boxed, we adopted what has been known as an "anti-bang" device. In this the loom frogs, instead of stopping the lay "dead," are moved some distance against heavy springs, and through connection to the whip roll, move it bodily forward. This permits the warp threads to slacken around the shuttle to prevent a "smash."

High speed usually means a tighter shuttle box to stop a faster moving shuttle. Great strains are caused by moving a shuttle out of a tight box. We have invented a device which permits the use of a loose box to pick from at high speed, by automatically obtaining a more efficient contact between the shuttle and its binder in boxing. We have also increased the efficiency of the check strap for finally checking the picker stick.

The greater momentum of the lay and the cam and crank shafts overcomes the resistance of the ordinary loom brake. We have designed, therefore, a positive acting brake that will stop the loom in position for the weaver to draw in the warp threads.

High speed, of course, involves increased power, and a friction clutch that will hold. To operate such a clutch, it was necessary to design a convenient and easily operating shipper mechanism so that the weakest female operative could start the loom with ease.

The greater speed of the lay made the filling fork more difficult to control, and this problem also seems to have been met.

Increased momentum also adversely affected our warp stop motion by increasing the blow of the feeler bar upon the drop wires, as well as the vibration of the parts which knock off the shipper. We designed an entirely new stop motion which runs quietly at half speed, is easy on the drop wires and has the added advantage of stopping the loom with the shuttle in the box on the shipper side of the loom, under easy control of the weaver.

Vibration of the loom increased the normal vibration of the warp beam. We overcome this by inventing a one-piece warp beam lock which holds the beam firmly in place.

The general vibration of the loom at high speed sets up internal strains which tend to cause breakage of parts and loosening of bolts; we have met this problem by letting the whole loom vibrate as a unit in special loom feet with limiting rubber bumpers. This permits the moving center of gravity of the whole machine to seek its proper position without too much resistance. At the same time the vibration of the mill floor is to that extent relieved.

It will be readily understood that many of these improvements found necessary for high speed looms should be, to a lesser degree, of advantage on low speed looms. As a matter of fact, we have adopted and shall use some of these improvements on every loom we sell.

Our company has of course applied for and taken out patents covering the more important features as they have been developed.

It should be unnecessary to explain to mechanical engineers the advantages of running any machine at higher speed provided production is increased thereby and quality is not impaired. We are not yet in a position to give definite facts and figures on this question, but we have sold several large lots of these looms and they will all soon be in operation.

However, I might suggest that for a new mill, fewer looms should give the desired product at a saving in first cost of looms, building and equipment.

For a mill replacing old looms there should be either:

1. A saving in first cost of the looms by reason of the smaller number required, and the use of the space saved by using fewer looms, or
2. A greater yardage from the same number of looms as before.

We believe, too, that there will be a saving in weaving cost per yard.

"PRACTICAL MULE SPINNING," by Reuben Fletcher. 134 pages. 65 illustrations. Price, four shillings six pence per copy net. Emmott & Co., Ltd., 65 King St., Manchester, England, publishers.

This book, written from the practical standpoint, deals with all the essential mechanism of the self-acting mule, and is intended to explain all the principles underlying the various actions in terms that will be clearly understood by those operating and interested in mule spinning. Special attention is given to winding and copping, on account of the great importance in this process.

The book represents largely a compilation of a series of articles appearing originally in the "Textile Manufacturer." Copies of the book may be secured direct from the publishers, or through COTTON'S Book Department.

Towels and Toweling

BY T. WOODHOUSE AND A. BRAND.

Figure 80 is a photographic reproduction of a special type of fabric eminently suitable as regards design for the production of toweling, especially of the non-crossbordered type. The two samples shown, viz., O and P, are identical in weave and warp, and thus differ only in the filling used. Both patterns were woven for demonstration purposes only, with 2-fold mercerized green cotton warp, but while the right hand example P has filling exactly the same as the warp, the left-hand sample O has bleached single linen filling. While neither of the samples are in the category of high-class fabrics, the left-hand sample O serves to illustrate a special class of combination design sometimes used in the manufacture of fancy crash and huckaback toweling in order to obtain a checked effect without the use of a multiple box motion in the loom.

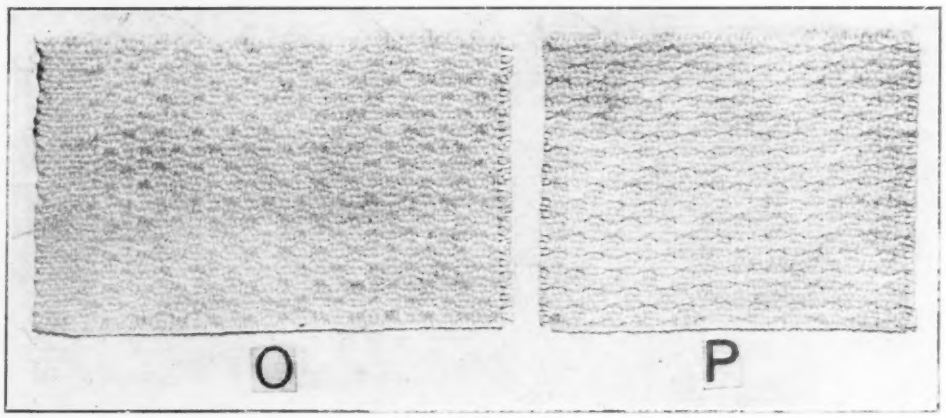


FIG. 80.

The complete weave, four repeats of which are shown at Q, Fig. 81, is really a combination of three distinct weaves. Two of these weaves are chosen specially to give contrasting effects to the third weave, which itself is arranged to give a decidedly barred or rib effect, and thus to aid the plain weave in forming a check effect about the main design. The basic weaves appear at V, W and Y in Fig. 82. The design, V, Fig. 82, is complete on 8 threads and 8 picks, and four repeats of the design are shown; the weave yields a pretty good crepe effect on the cloth, there being a slight tendency to a steeply-inclined twill.

This design V is formed from the 3 up 3 down 1 up 1 down straight twill to right, four repeats of which appear at T, Fig. 82, by rearranging the 8 threads of weave T in the 8-thread sateen order, viz., 1, 4, 7, 2, 5, 8, 3, 6. Any of the crepe or huskaback weaves, indeed, any weave, capable of giving a suitable all-over effect, can be used in place of the weave V, Fig. 82, for the main or ground effect of a check pattern similar to that illustrated in Fig. 81.

Weave Y, Fig. 82, is the plain, tabby or calico design; four repeats in the way of the warp and of the filling are shown, i.e., 16 repeats in all. This plain weave is used to separate the large blocks of crepe weave in the fabric, and to produce an effectively contrasting vertical stripe. The checked effect is obtained by introducing a suitable number of picks of a weft rib or repp design. In the present case, 8 picks of the weave W, Fig. 82, are used; this is the 8-thread, 2-pick weft rib, and four repeats are shown.

The complete weave Q, Fig. 81, repeats on 48 threads and 48 picks, and is capable of being woven with 12 harnesses. One weaving plan is shown at R, in which case the draft would be that illustrated at X. Draft X has the advantage of placing the plain threads on the first group of harnesses. Owing to the different interlacing properties of the plain and crepe weaves, some managers might consider it an advantage in an actual toweling fabric to cram or crowd the crepe portion more than the plain portion.

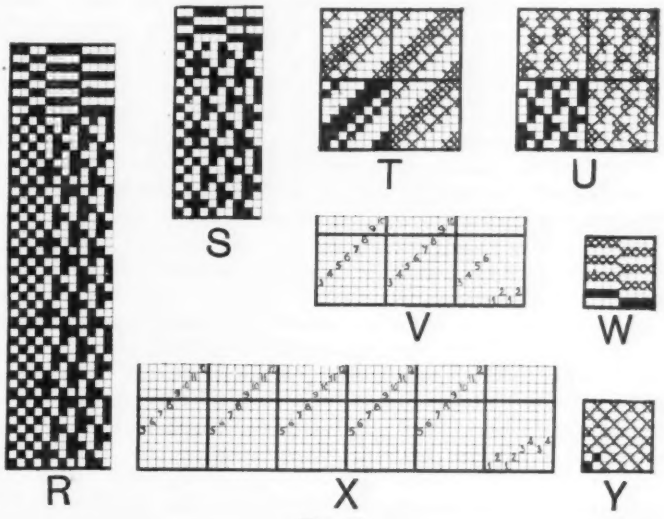
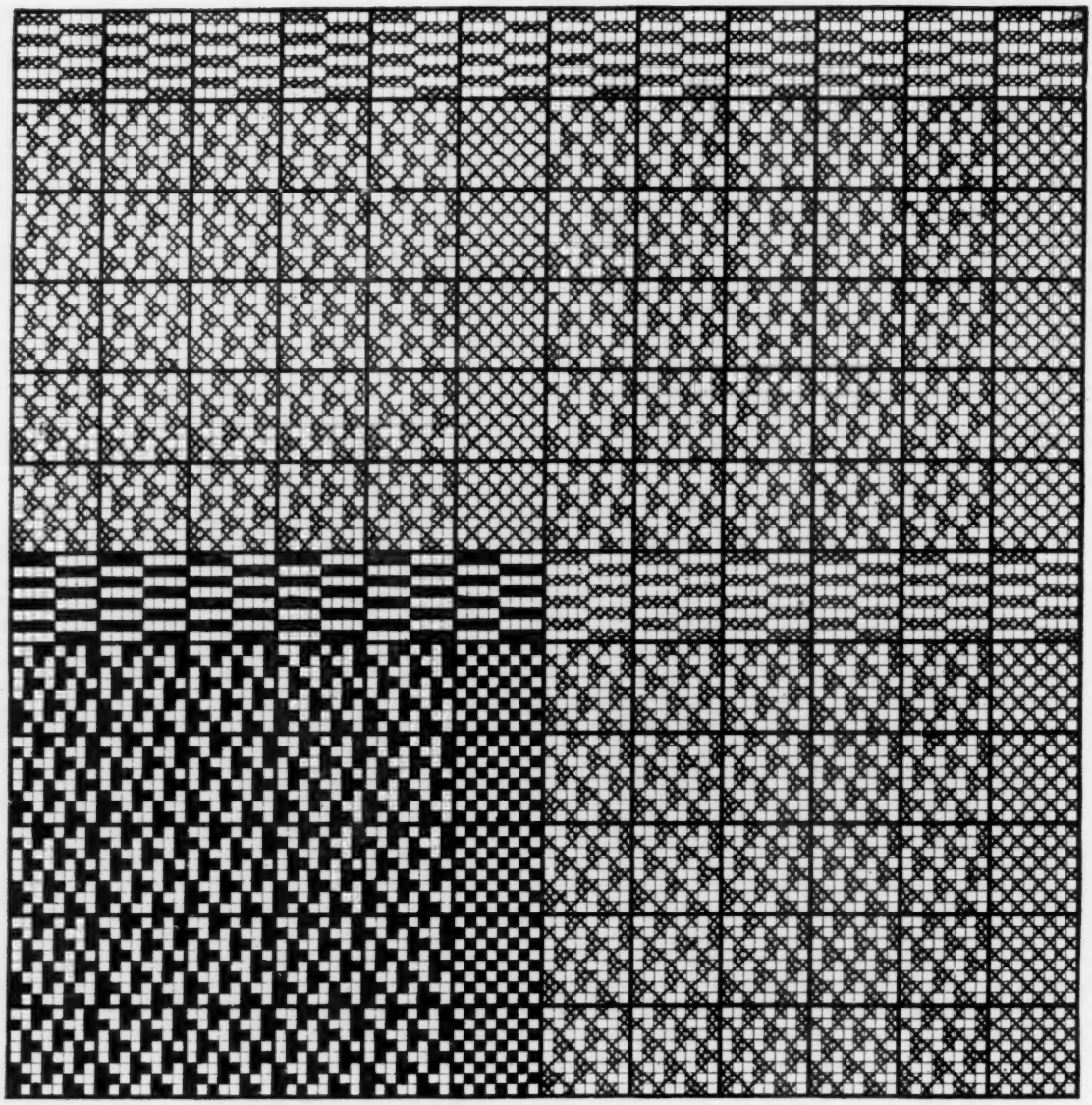


FIG. 82.



Q

FIG. 81.

This end might be achieved by reeding the crepe threads 3 per split and the plain threads 2 per split. Such a method of reeding and cramming would probably produce a better balanced fabric than would be obtained without reeding and cramming; the arrangement might also yield a greater production of cloth if the cramming or crowding were not carried to excess.

The checked effect may be accentuated, and the fabric further improved in structure, by introducing an attachment between the dobby and the take-up motion to cram the picks in the weft rib portion. With the weft rib type of weave, it is quite possible to put in approximately double the number of picks per inch as would be possible in a plain cloth of similar yarns and setts; to do this, however, it is necessary to arrange some type of mechanism so that the retaining catch of the take-up motion may be lifted on, say, the even-numbered picks of the weft rib portion.

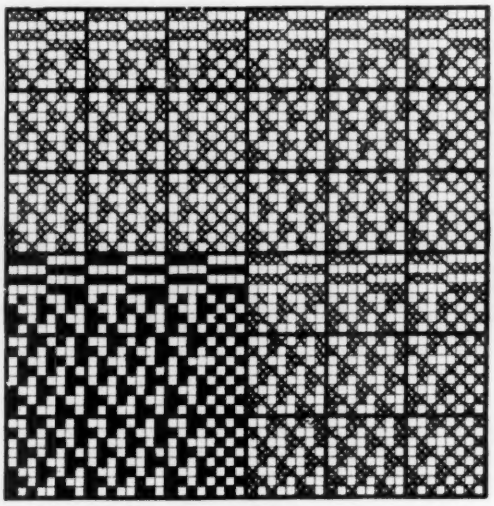
Check patterns similar in structure to those in Fig. 80 can be altered in size by varying the setts of the fabrics, or by altering the numbers of threads and picks in the combination design, or by using both methods. An effective small check could be made by using the design, Fig. 83, which is complete on 24 threads and 24 picks, and requires 10 harnesses only, i.e., 2 less than design Q, Fig. 81. One weaving plan and the corresponding draft for design Z, Fig. 83, appears at S and V respectively in Fig. 82. The reason why design Q, Fig. 81, requires two more harnesses than the smaller design Z, Fig. 83, is because of the weft rib floats occupying different positions with respect to the plain threads of the design. Both large and small designs produce a fairly rough surface in the resulting fabric, giving a good drying surface, a property which is so essentially desirous in a fabric intended for towel purposes.

Although moderately effective results are obtained by

using warp and filling of similar yarns—as evidenced by the fabric P in Fig. 80—the characteristic checked effect is only obtained by using warp and filling of distinct kinds. For example, a colored warp may be used with a white filling, as in pattern O, Fig. 80, or vice versa. If a somewhat similar cloth were made with flax line or tow yarns, a good order would be as follows: Warp, 40 threads of grey or unbleached yarn, 8 threads of white or bleached yarn; filling, all bleached yarn.

If made with all cotton yarns, an effective result would be obtained by substituting suitably colored cotton yarns for the unbleached flax threads, and using white cotton for the remainder of the warp and for the filling. Where flax yarns are used in the order indicated, the white filling which crosses the white warp would give a solid white effect, while the white filling which interweaves with the grey threads would yield a different effect.

The use of the weft rib weave in the positions indicated in Figs. 81 and 83 would mean practically solid bars of white filling crossing the fabric from selvage to selvage With the small proportion of bleached warp yarns due to the employment of grey yarns in the proportion of 40/48 of the total, i.e., 5/6 or 83⅓ per cent, a heavier fabric at



Z

FIG. 83.

less cost would result from the same spun counts of yarn, as compared with the case where all the warp yarn was bleached. Corresponding results, of course, would be obtained from the employment of cotton yarns, i.e., natural colored and bleached, but if colored cotton yarns were used, an increased cost would be inevitable due to the operation of dyeing, and possibly a preliminary bleaching process might be necessary in certain cases.

The foregoing method of producing checked effects naturally has its limitations, but, within its scope, it has several obvious advantages over the more orthodox method of using different kinds and colors of filling. For example, a less experienced weaver is required, a less skilled fixer is sufficient, a cheaper and simpler loom is employed since no checking or multiple box motion is necessary, while a high speed of the loom can be maintained giving, as a consequence, in general, a greater production of cloth. The net result is that quite as useful a fabric can be produced at a smaller cost than would be the case with the regular methods of producing checked goods.

Many varieties of towels have their sole ornament or decorative effect in the end-border or cross-border; this ornamentation is sometimes effected by merely changing the filling at certain fixed intervals, e.g., using a thicker yarn for a small number of picks, by employing colored filling, or by a combination of the two. Occasionally, colored filling only is introduced according to some pre-arranged plan, and all of these methods of embellishment may be found in towels with or without a fringe formed by the warp threads. Again, elaborate effects may be obtained by using cross-border dobbies, some with, and some without, automatic motions for determining the period during which each of the sets of lags and pegs is in operation. And, of course, any complex pattern may be produced in the case of jacquard-figured fabrics.

Besides the methods mentioned, when huckaback fabrics in particular are produced in a Woodcroft tappet loom, it is possible to produce very neat effects in the cross borders by an alteration of the weaving plan, this alteration being carried out in a comparatively simple manner. In such looms, the blades of the Woodcroft tappet act on treadles outside the framing of the loom, and the free ends of these treadles are in close proximity to the place where the weaver usually stands. Cords from the ends of these treadles are attached to levers which actuate the harnesses. It is readily possible to arrange the cords so that they may be slipped off the end of one particular treadle and as conveniently slipped on the end of any other treadle; this operation of changing the cord from one treadle to another is made practicable by fixing a suitable form of leather or metal link to the treadle ends of the cords.

Figure 84 is introduced to illustrate some of the many changes possible by this method, which, as already stated, has the great advantage of simplicity. In each of the seven sections of the figure, A is the weaving plan—the most common arrangement—of the ordinary 10-thread 10-pick huckaback, while the vertical lines B represent the treadle cords, and the solid circles C are intended to indicate the ends of the four treadles.

When no alteration is made in the positions of the cords B, the original weaving plan A still obtains, as indicated at D, and the weave produced in the fabric is the ordinary 10 by 10 huckaback, of which one complete unit appears at L. It is understood, of course, that the huckaback draft, 1.3.1. 3.1.4.2.4.2.4, is used, and that this draft naturally remains unaltered throughout.

If the link from the third treadle C is placed on the first treadle, and the link from the second treadle is placed on the fourth treadle, the first and fourth treadles will each carry two links, while the second and third treadles will be without any link. It is obvious that the second and third blades of the tappet will continue to revolve in unison with the others and impart the usual reciprocating motion to their corresponding treadles, but, since the connecting cords have been removed from the second and third treadles, these two treadles will not affect the working of the harnesses in any way. On the other hand, the first and fourth treadles will now each control two harnesses. The first and third harnesses must now move according to the first treadle, actuated by the first blade of the tappet, while the second and fourth

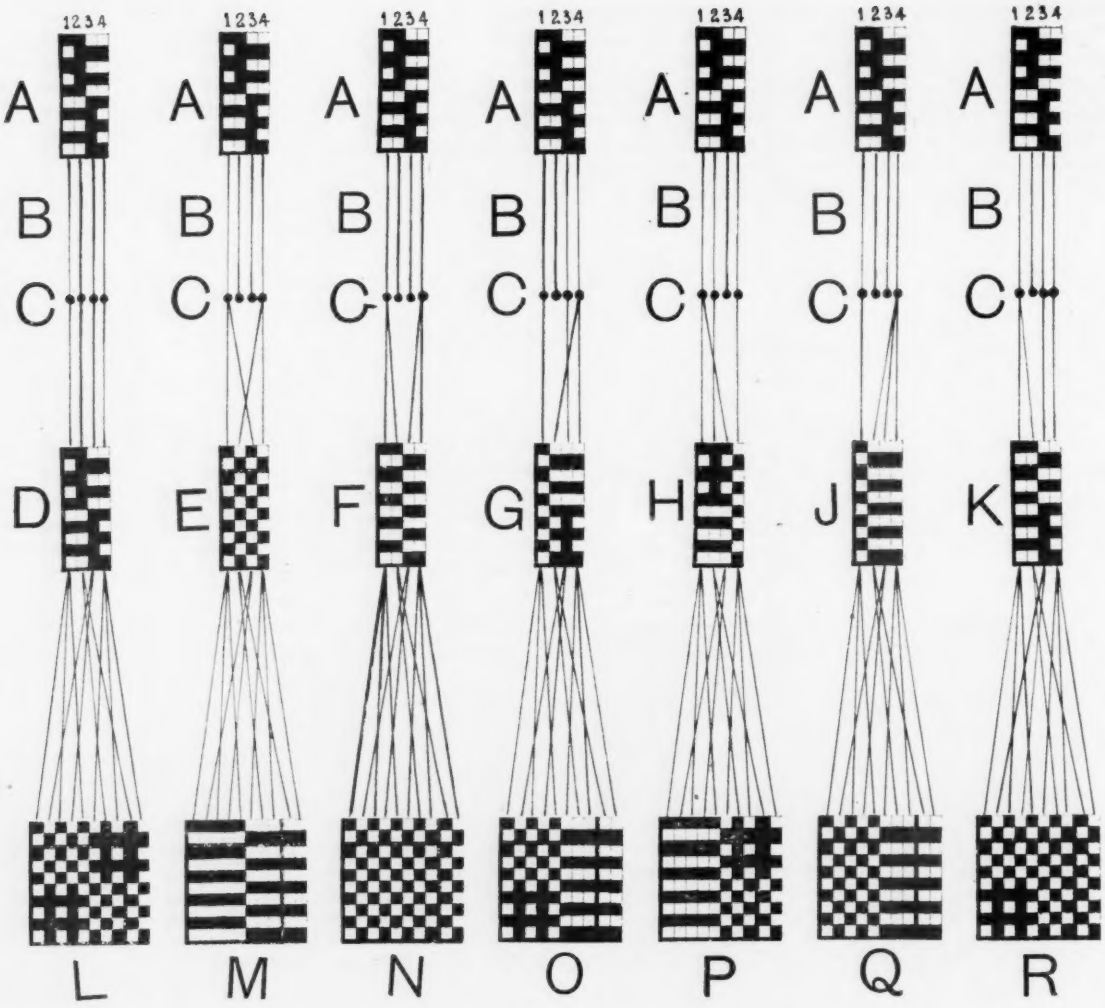


FIG. 84.

harnesses will work similarly to the fourth treadle, controlled by the fourth blade of the tappet.

The above described changes are indicated diagrammatically in the second section of Fig. 84, where it will be seen that the alteration of the cords converts the original weaving plan A into an entirely different weaving plan E. In virtue of the huckaback draft, 1.3.1.3.1.4.2.4.2.4, and indicated by the 7 sets of 10 crossed lines in the lower portion of the figure, this weaving plan E produces an effect in the cloth according to the design M. The design M is obviously one form of weft rib or repp, a type of weave requiring a maximum number of picks per inch in order to produce a good effect. But the selvage of the fabric, generally plain weave, tends to resist the insertion of a large number of picks per inch, and, were the changed effect of weaving continued for anything but short distances, special provision would have to be made to facilitate the weaving of the selvages. In general, however, sufficiently good cross-border or end-border effects are obtained by the use of a comparatively narrow rib, and special provision for the selvages is unnecessary.

In a similar manner, but by altering the positions of different cords as indicated in Fig. 84, the original weaving plan A may be altered to those shown at F, G, H, J and K, and produce effects in the cloth corresponding to the methods of interlacing the warp with the filling in designs N, O, P, Q and R respectively. The design N is plain weave; design Q produces alternate vertical stripes of plain weave and weft rib, while design R is the huckaback warp effect on a plain ground. Designs O and P, apparently different at first sight, produce exactly the same effect in the cloth, but in slightly different order; the design P may be produced by rotating design O through 180 degrees.

The three designs M, N and Q possess the advantage that the weaver may change at any point without fear of making an imperfect joining in the fabric. In the case of the other three effects O, P and R, little, if any, consideration is required, as in practice these effects are usually preceded and followed by either weave M or weave N. More elaborate weaves than those illustrated in Fig. 84, with corresponding effects in the cloth, can be produced by further developments of the same principle, but, in general, these do not justify the extra care and attention necessary on the part of the weaver.

(*To be continued.*)

Greenville's Textile Show Week

This is a record of Textile Week in Greenville—October 20th to 25th inclusive. It was a week "filled up, pressed down, and running over" with activities of interest to textile men—an interest manifested by the largest attendance in the history of southern textile exhibitions.

First and foremost to be considered was the Sixth Southern Textile Exhibition, which held forth in a definite aura of brilliance and splendor during the entire week. Undoubtedly the most successful of any Greenville exhibition so far held, this year's show created for itself a new and definite place as an epoch in southern textile history.

One factor contributing to the show's success was the fact that long before the week arrived, the amount of space applied for overflowed the capacity of the commodious hall which has housed the previous exhibitions. An annex of considerable size, connected by passageway to the main building, was erected, and this, as well as Textile Hall itself, was crowded with exhibits.

It may be stated here, parenthethically, that any misgivings experienced before the show as to the comparative value of space in the temporary annex and in the main building, were definitely removed as the show itself came into being, for it was very noticeable that the crowds inspecting the exhibits in the annex were just as large as those in the original building. No criticism from this standpoint was heard after the experience of the week had demonstrated this fact.

To adequately describe the individual exhibits would require more space than is available; nor could written description properly present some of the outstanding features. Speaking of the ensemble of exhibits, it can truthfully be stated that as a whole the exposition represented the most complete, most interesting, and most comprehensive display of machinery and equipment devoted to the cotton textile industry that ever has been held.

To the people of Greenville, and more particularly to the exposition officials and the housing committee, the sincere thanks of the visitors—mill men and exhibitors alike—are certainly due. With the experience of five previous exhibitions to guide them, and with this exposition coming at the high-tide of the time of a re-awakened industrial South, the efforts of the exposition management were evidenced in a perfectly-operated and arranged show. President William G. Sirrine and Manager Earle Mauldin, of the Textile Hall Corporation, did their work well. Visitors from all parts of the country were loud in their praise, especially of the manner in which the exhibits were arranged, and in the service rendered during the week to every exhibitor.

One act on the part of the management worthy of especial commendation was the sending, in advance of the show, of a complimentary season ticket to the exposition to every textile mill superintendent in the South This undoubtedly did much toward influencing the unprecedented attendance.

The Greenville Textile Club, an organization composed of operating executives in the mills of Greenville, had fitted up the mezzanine at the front of the second floor of the Hall as a rest room for visiting textile men, and this was a popular spot during the entire week. Writing materials, telephone service, and other conveniences were provided. Each evening during the week splendid musical programs were rendered here under the direction of the Garing Orchestra, which also played each afternoon in different parts of the buildings.

Monday of Show Week marked the opening of the exhibition with simple but effective ceremonies. At 10 o'clock on Monday morning, the hum and roar of the machinery was stilled, while President Sirrine formally opened the show, following which came words of welcome from several of Greenville's leading citizens. After the speaking the switch giving motion to the machinery was thrown, and the show was on.

One feature of Monday not to be overlooked, and most certainly to be commended, was the unusually large attendance of mill men on that day. Usually at expositions the opening day is one of final preparation on the part of exhibitors, with the attendance consisting largely of local people—but not so at Greenville this year. The attendance of overseers and other operating executives from all parts of the South on Monday presaged an interest that was borne out by the attendance of the higher executives of the mills during the remaining days of the week.

Tuesday of Show Week brought the meeting of the Board of Governors of the American Cotton Manufacturers' Association, which was attended by A. W. McLellan, of New Orleans, the president, and a good representation of the membership. This feature augmented the attendance at the show of financial executives. After this meeting it was announced that the annual convention of the Association will be held in New Orleans, La., some time during the latter part of April.

On Wednesday, visiting mill men and exhibitors were guests of Greenville at a barbecue staged at the city baseball park from 12 noon until 3 o'clock in the afternoon. Approximately 1,500 people attended this barbecue, which was enlivened by entertainment in the form of a battle royal between some colored boys in a roped arena. The barbecue was prepared and served under the direction of Clem Castleberry, famous barbecue chef of Augusta, Ga. Wednesday also was featured by the semi-annual meeting of the Southern Textile Association, in the afternoon, which is reported separately elsewhere in this issue.

Thursday evening, at 6:30 o'clock, a southern section of the American Association of Textile Colorists & Chemists was organized, at a banquet staged by several members intimately interested in this society. Dr. E. H. Kilheffer, of the Newport Chemical Works, who is a member of the New York section of the Association, acted as toastmaster. An enthusiastic organization meeting was held, Brown Mahon, vice-president and assistant treasurer of the Judson Mills, Greenville, S. C., being elected chairman of the Southern Section; with John H. Carey, of the Brogon Mills, Anderson, S. C., as vice chairman. The following were named as members of the sectional committee, to operate with and under the direction of the officers: N. R. Vieira, of the Newport Chemical Works; H. L. Siever, of Borne, Scrymser Company; A. W. Mungall, of Massachusetts Cotton Mills, Lindale, Ga.; and Charles H. Stone, of Grasselli Chemical Company, Charlotte. Peter F. O'Neill, of the Standard-Coosa-Thatcher Company, of Chattanooga, Tenn., was named as treasurer, and Harry Ormond, of the Union

Bleachery, Greenville, S. C., was selected as secretary.

Friday was featured by the meeting of the Greenville branch of the Carolinas Section, American Society of Mechanical Engineers. This meeting attracted a number of members of the Society who were in attendance upon the show, and was very well attended. The meeting was held on Friday morning, and in the afternoon the delegates visited the Duncan plant of the Southern Power Company, and the new Southern Bleachery, both near Greenville. At the morning session, Clare H. Draper, treasurer of the Hopedale Manufacturing Company, of Milford, Mass., spoke on the subject of the high-speed automatic loom. This paper appears upon another page of this issue.

On Friday evening the dinner of the American Society was held at the Greenville Country Club, being followed by a well-attended dance given by Greenville to the visiting textile men and exhibitors.

Southern Textile Association

Although only a one-day meeting was held, the semi-annual convention of the Southern Textile Association, conducted at Greenville on Wednesday, October 22nd, during the Southern Textile Exposition, was thoroughly enjoyable and profitable. Only one session was held, in order to allow the visitors more time to inspect the machinery exhibits at Textile Hall.

The meeting was held in the director's room of the Woodside National Bank Building, being opened at 3:15 o'clock on Wednesday afternoon, with President Marshall Dilling in the chair. The invocation was made by D. W. League, of the F. W. Poe Mfg. Company, of Greenville, after which Mr. Dilling asked David Clark, editor of the Southern Textile Bulletin, to introduce the first of the two speakers of the occasion. Mr. Clark presented John Bancroft, of Joseph Bancroft and Sons Co., Wilmington, Delaware, who spoke upon the subject of

"The Need for Fundamental Research in the Textile Industry."

Mr. Bancroft said in part:

"Since accepting the kind invitation extended me to talk to you, I became more conscious every day how poorly equipped I am in language and in scientific knowledge to present such an important question adequately in the realization of the great changes that have occurred, and are taking place, in the economic conditions in this country, and its various industries. These changes cannot be met by continuing methods that have been in use for several generations; these should be modified or improved in the light of all new knowledge and facts that can be brought to bear upon them by the work of highly trained technologists devoting their time and talents to the search for the best raw material and the most economical and scientific methods of manufacture.

"I believe that all of us who are interested in seeing our cotton mills prepared to meet both foreign and home competition in quality and cost, and who are concerned in the future welfare of our employees and the growth of our important industry, should give this project careful consideration. Let us realize that more thought must be given for the morrow and less to the past to meet the new and greater demands. We must build more solidly for the future.

"Dr. Pickard well said at Charlotte last month: 'For the industry collectively, what we need as much as anything else is collective sentiment and collective determination to increase the distribution of American products abroad. As an adjunct to this, we should have a well organized and well supported textile research laboratory, designed to study constantly the elimination of waste and the application of improvements in machinery and improvements in manufacturing methods,' to which I will add and to help towards a more balanced production and better marketing conditions.

"A research laboratory must necessarily be under a council exercising proper and intelligent control, and representative of the many factors contributing to the finished product. This council should be comprised of men who are thoroughly impressed with the great importance and value of research, and who are, in a sense, idealists, with the ability to separate the essential from the non-essential in the reports submitted by the technical staff. It should act as a clearing house for the data and information collected and presented to it, and should keep the industry in close cooperation with its activities through publication.

"For the sake of brevity, I will quote from a correspondent, whose views I asked on this subject, as they are explanatory and constructive, and cover the ground concisely:

"'*Meaning of term fundamental research*: No substantial progress toward the development of a broad program of fundamental research in the textile industry of this country can be made until the popular misconception of, and ignorance pertaining to, the term are eliminated. It is undoubtedly true that a very large number of manufacturers consider standardization and testing the backbone of research. As long as this conception prevails a mill will consider that it is doing its bit toward promotion of scientific investigation merely by the installation of an analytical laboratory, which, sooner or later, becomes a routine department either for the testing of mill supplies or for the checking of individual lots of yarn or cloth as they pass through the mill.

"'It cannot be said too often that fundamental research has nothing to do with the working out of specialized problems which happen to confront individual plants or individual groups of plants comprising specific branches of the industry. It is instead an examination of the premises on which our present processes of textile manufacture are based. This does not mean that a program of fundamental research should be started on the belief that these premises, either in whole or in part, are wrong. Such a program should merely take it for granted that we do not know whether many of them are wrong or right.

"'*What it can accomplish*: A logical argument in selling a group of men on the idea of fundamental research in an industry is of course by means of examples,—that is, citing specific cases or results accomplished by such a program in other fields. This method has been used in detail in nearly every discussion of the subject. While admitting the value of this, I feel that any intelligent manufacturer who once understands the real meaning of fundamental re-

search needs nothing but his own processes of logic to convince him that the good to be achieved far outweighs any material cost. I cannot believe that a mill man, with any sort of experience, can delude himself with the idea that he is necessarily getting maximum quality and quantity performance from his equipment.

"'The finishing branch of the textile industry is, in my opinion, an excellent example. Any one familiar with starching formulae, for instance, and with the manner in which desired finishes are obtained in the average plant, must be impressed with the fact that this whole process can never be placed upon a scientific and fool-proof basis until more is known regarding the characteristics and effects of the individual constituents comprising a starch mix.

"'*Scope of institute*: It is in connection with the scope of the proposed research institute that the greatest difference of opinion will develop. Many feel that it should be localized at the start to one particular branch of the industry—particularly, the cotton branch. This is largely a question of psychology. Let us suppose that the first step is launched by the cotton people. Is it not logical to suppose that the other branches will allow jealousy to prevent them from cooperating at some later date when it is deemed advisable to extend the scope of the institute? Is it not equally logical to suppose that the other branches would be spurred into action on their own hook and would create individual institutes of their own; thus resulting in needless and expensive duplication of effort? There are so many technical problems which are common to all branches of the industry, and which, up to a certain point, can be worked out in a general way for all. I think the ideal organization is that developed in England, where they have individual associations for the various branches, but all coordinating and cooperating as a textile research organization.

"'Furthermore, it is a matter which concerns every factor in the fields of fiber production, yarn and cloth manufacture, cloth finishing and wholesale and retail distribution. In this connection, it is the belief of many that technical research should be closely linked with merchandising research, in order that the industry may determine not only the best way in which to produce a material, but also the best way to create a market for that material when produced. Consequently, it is quite within reason to imagine a merchandising research branch operating in close cooperation with the technical research program.

"'*Method of organization*: While much of the question of organization of a research institute is involved in details, these details are extremely important if it is to accomplish the broad purpose for which it is established. In order to insure the crystallization of the best thought of the industry on these details, it is necessary to have as a nucleus two types of men,—men with money and men with technical ability. In other words, neither the mill executives nor the technical men can float this project alone. Consequently, every selling argument must be directed toward teaching the doctrine of fundamental research to the men with the funds and industrial influence as well as to those men who may be expected to take the most active part in the application of research results.

"'In addition, it is going to be necessary, as has been pointed out repeatedly, to secure the cooperation of pure scientists who will bring to the task minds unhampered by conceptions based on years of internal experience, which conceptions may be either wrong or right. Furthermore, while avoiding all traces of government subsidy or control, it is necessary to secure the cooperation rather than the antagonism of those government bureaus which have already accomplished a great deal along independent lines of fiber research and other matters. Universities, with their resources, can also be helpful to such a program.

"'In all of this, however, it should be remembered that the idea is a centralized organization and that no unified program can be developed if we continue to be content with efforts scattered over a broad number of agencies working as individual units. In other words, the utilization of these agencies cannot take the place of a central institute with its own staff and laboratories and equipment.

"'Probably one of the most difficult details of organization to settle is that of assessment,—nor can anyone determine the best way in which the financing of the institute should be arranged. However, it should be taken as basic principle that a "piker" plan of financing will defeat its own ends.

"'*Application of results*: While fundamental research, as stated above, is far more than applied research as practiced in many individual plants, the latter is a logical sequel to the former. In other words, instead of curtailing the number of plant laboratories, the development of a successful fundamental research institute presupposes the establishment of a far larger number of these individual laboratories where the broad results achieved in the institute may be applied to actual practice. It can easily be visualized as a remarkable feeder for a new group of technical men which will infuse the industry with a broader conception of its possibilities.

"'*Conclusion*: Fundamental research is not a fetish; it is a practical idea of tremendous importance to both management and workers. To the former it offers at least a partial solution to some of the problems reflected in periodic stages of depression and acute foreign competition; to the workers themselves it offers at least a partial solution of one of the gravest problems with which they are faced,—that of the inflexibility of textile manufacturing organizations. Operatives with any intelligence are coming to realize that manufacturers are not trying to get their services at a minimum price, but, on the other hand, are severely handicapped by the more or less inflexible profit margin under present manufacturing and merchandising conditions.

"'The formation and proper promotion of a research institute program in this country is inevitable. There is no logical reason for delay in its initiation, outside of the need for extreme care in developing the principles and details of the prosecution of the plan.'

"In seriously considering the project, I would suggest the appointment of a joint committee of members of the various textile associations, instructed to learn the sentiment concerning the establishment of a research laboratory on fundamental lines, like the one in England, together with the approximate estimate of its annual cost. If it can be maintained at an amount no greater than that of the Shirley Institute, it would not tax the cotton mills in this country as much as one cent per spindle per year; certainly such a contribution could not be figured into the cost of the product appreciably, and probably would not need to be increased for some years. In that time certainly either its benefits would be demonstrated or its futility seen.

"The future success of the cotton industry, owing to

its great growth, particularly in the southern states, is more dependent than heretofore on lower production costs and better quality of product. If such is your belief, then should not the best guidance be procured in highly trained men, devoting their time and talents to searching for the cheapest raw materials and the most economical and scientific methods of manufacture? Ought we not make every effort to imbue those engaged in the cotton industry with the importance of such new knowledge and its helpful effect on the intelligent workers in our mills? Conditions of workers will be improved; salaries and wages increased because of greater interest in the work done under better guidance; disputes more quickly settled, and difficulties more easily overcome. New lines of development will be opened as we are released from the limitations of tradition and precedents. The latter now hold us to narrow profits, whereas, these same profits might become larger, safer and more easily procured.

"Those who are interested in the future welfare and growth of our mills should realize the opportunity offered, and have faith in its possibilities. The American manufacturer is an optimist and most certainly the cotton manufacturer must be, or else how can he be content to continue on in the face of the uncertainties in his raw material and labor costs, to say nothing of the competition he meets in a highly organized market in selling his product? Men of ability are not lacking, nor should there be any question of finding the money required, even in the face of having to wait several years before practical results are realized.

"Surely no one can doubt that cotton itself is cheaper today than it would be had the chemist not found values in the cotton seed, formerly thrown away. Technology in industry is vital if industry is to keep at the front in world needs, and must be continuous. It is becoming to be thought an asset to industrial plants.

"The cotton manufacturers today find it necessary to secure a market for their surplus in excess of domestic requirements, and must sell it in competition with the lowest costs in other countries; to do so, surely they must have all the knowledge available. Should we not inspect our mental batteries and perhaps exchange them as we find more thought must be given for the morrow?"

Following Mr. Bancroft's remarks, the president asked Robert W. Philip, associate editor of COTTON, to present the next speaker, who was Shorland F. Fannon, director of the department of public service, Sherman Service, Inc., of Boston, Mass., who discussed the subject of

"The 75-Cent Dollar in Industry."

Mr. Fannon dealt with human values in industry, and the importance of the utmost cooperation between employer and employee. His address was acceeded to be one of the most inspiring ever delivered before the Association. He said in part:

"I ofttimes wonder if we realize the value of getting together and enjoying the good will that is expressed in such meetings as this. Rubbing shoulder to shoulder, elbow to elbow, learning the value of a man outside of the clothes he wears, the home he lives in, or the business in which he is engaged. We cannot hope to build a home, city or nation, and build it well, unless we first lay the foundation of good will. Good will is the prime factor in business. We have erased from our blackboards the statement, 'the public be damned,' and we have written in its place, 'the public must be pleased' or 'the customer is always right.' I am certain that each and every one of us realizes that a certain part of our profits today are directly due to this principle of good will in business.

"And yet men, with all the lessons we have had, with all that we are learning about good will, I wonder how many of us have ever stopped to realize just what we are suffering in this country because of the lack of application of good will in its most fundamental application—not toward our customers, but toward our employees, whose hands and brains make possible production in quality and quantity. Do you realize that because we have failed to develop, as industries all over the country, a feeling of good will between employer and employee that we are losing 25 per cent of every dollar that we are investing in the pay envelope, that industry is putting one dollar in the pay envelope from which it is receiving but seventy-five cents in return today? A seventy-five cent dollar in business! What a stupendous loss—a loss which at once creates an economic waste, that cannot but affect employer, employee and the entire country.

"Let us consider for a moment or two the various major factors found in industry. Take machinery. We have ever spent a large amount of time and money upon machinery, that from it we might receive the maximum return for every dollar invested. We have kept our inventors busy applying their genius toward the development of this factor, that we might secure a higher production and the largest possible return on every dollar invested in machinery.

"Day and night we are working upon the problem of raw materials. We have created our own research departments that we might locate sources from which we might secure a constant supply of the proper qualities, and thus eliminate all losses in raw materials.

"There is hardly a newspaper or periodical published today that does not contain an article on management. Highly developed courses on management are to be found in the curriculum of our larger universities. We are putting forth every possible effort in order that there may be no loss in the dollar invested in management.

"The same can be said of merchandise and market. The matters of style, the elements of fashion, the question of seasonable goods, the various channels of distribution, and numerous other related phases are all under continual scrutiny, not only by individual manufacturers, but also by associations of manufacturers, in practically all lines today. We are maintaining experimental laboratories for the purpose of obtaining quality, decreasing cost, and developing new and additional uses of products, that we might secure the maximum return for the dollar invested in merchandise and market.

"But when we come to the dollar invested in the human factor we find quite a different story. It does not seem possible that men who have shown such intelligence and foresight in handling the dollars invested in these other factors, would fail in many instances to provide against a loss in the dollar invested in men. There are a few employers who give intelligent and sympathetic consideration to the viewpoint of the workers. These employers are receiving a larger return for the money invested. Nevertheless, the truth remains that we are almost universally neglecting the dollar invested in the payroll envelope.

"Are we to admit that cash invested in plant and equipment exerts a more powerful appeal to the executive than cash invested in payroll? Is it possible that a machine made of iron and steel is more attractive to the executive than a machine made of flesh and blood? Man-power is vitally essential to machine-power and to the profitable operation of any industry. All factors found in industry and business depend upon the loyal support, intelligent cooperation, and harmonious production of the human element.

"Nevertheless, mechanical factors commonly receive 95 per cent of the executive's attention, and the crumbs of 5 per cent are thrown to the human factor. In many plants at this moment engineering specialists are engaged in studying and improving conditions of equipment and process. This is as it should be—executive appreciation of science in machinery and processing adds to profit. But in how many plants will you find management sufficiently enlightened to realize that science in the human factor pays large dividends?

"Why is it that we are paying 95 per cent attention to plant and equipment and only 5 per cent to men? One man said to me, 'Mr. Fannon, I will tell you why. America is a business nation. Being a business nation she thinks in dollars and cents. Thinking in dollars and cents, the executive quite naturally thinks of his largest investment, and his largest investment is in plant and equipment.' Now this is a fallacy. Our largest investment is not in plant and equipment but in the dollars and cents invested in the payroll envelope. In the average business cash invested in payroll will exceed cash invested in plant and equipment within two or three years, even the most unusual enterprises' payroll will exceed plant investment within five years.

"Take for example your own plant. Figure its cost as compared to your annual payroll and you will find that there is not much difference between the two—the amortization of your plant is probably on a twenty year basis—your payroll is paid every year.

And yet, how we safeguard the investment in plant and equipment. He would be a foolish man who would allow his plant to go a single night without proper insurance. But how many plants today have a protection on the larger investment, that of the payroll envelope? Necessary? Absolutely! Our industrial fire losses have averaged two hundred million dollars yearly; strife losses have equalled two billion dollars, a risk and waste ten times as great as that of fire and though it has been tried, no insurance company has as yet been able to withstand the losses in the writing of strife insurance policies. And what is the cause of strife but the lack of good will and common understanding?

"Many employers have tried to secure improved returns on payroll investment by placing industrial spies in the plant to report delinquent employees so that they may be discharged. It is no more sound to fire the average delinquent workman than it is to scrap a valuable machine simply because it isn't operating well. This antiquated practice is utterly hopeless of success because no system of spyism can do no more than deal with symptoms, leaving the causes as firmly entrenched as ever.

"Other employers have tried to secure improved results on payroll investment through the various activities known as welfare work. They tried to win the cooperation of their employees by giving them something. Labor does not want patronage; particularly when it assumes large proportions and lays itself open to criticism as undesired activities paid for involuntarily by the employees out of money taken from their pay envelopes.

"Some employers think that wages alone control productive effort. This is unsound because thousands of workmen who are getting a large day's pay are delivering from 25 to 50 per cent less than a full day's work. It ofttimes turns out that the more the employer pays, the less the employee delivers. This fact may well furnish food for thought to employers who are increasing wages in the hope of increasing production.

"Other employers think that vocational skill controls productive effort. There are, however, countless employees who are vocationally fit, but who are delivering from 25 to 50 per cent less than a full day's work. Some of the shortest producers are well trained men in their vocations.

"Sherman Service has proved that the factor which controls the productive effort of every workman is his 'motive.' If a man kills another man, the law recognizes that motive controls action and the State will ascertain the motive for the act. But aside from acts governed by law, the existence and power of motive has been little understood.

"In industry, the motives of workmen exert a tremendous influence for or against productive effort, and are thus the root of vast losses on payroll investment. And yet employers pay little or no attention to the motives of employees.

"In various plants considerable attention is given to motion-study, but not to motive-study, although the motions of the workmen are controlled by their motives. Sherman Service has established the fact that every working force is made up of three types of employees, irrespective of the size of the plant, kind of product, open or closed shop, or any other condition. Not three types of employees by sex, creed, vocation or rate of pay. But three types as regards motives: Conservative, Radical and Neutral.

"The proportions vary somewhat from one plant to another, but we have established through our analysis that in 100 typical employees, 10 per cent are of conservative motive, 10 per cent of radical motive, and 80 per cent of neutral motive.

"The ten employees of conservative motive produce a full day's work. There is no loss on their payroll dollar.

"But the ten employees of radical motive produce only 50 per cent of a full day's work. There is a loss of 50 per cent on their payroll dollar.

"And the eighty employees of neutral motive produce 75 per cent of a full day's work. There is a loss of 25 per cent on their payroll dollar.

"The net result in this case, which is typical, is a loss in production value of 25 per cent of payroll investment per 100 employees.

"An employee of conservative motive is a 100 per cent producer for the reason that he believes that it pays to apply himself loyally and diligently, and to give his employer as much as possible. His daily production reflects satisfaction, cooperation and active interest-in-the-job.

"An employee of radical motive is a 50 per cent producer for the reason that he believes that it pays to restrict his efforts and to give the employer as little as possible. His daily production reflects discontent, antagonism and extremely active hatred-of-the-job.

"An employee of neutral motive is a 75 per cent producer for the reason that he believes that it pays to pro-

duce just enough to hold his job. His daily production reflects indifference, non-initiative, and lack of interest-in-the-job.

"Thus we have a loss of 25 per cent in production due to incorrect motives of the employees. Correct this motive and we salvage some part at least of this 25 per cent loss which is at once placed on the profit side of the ledger.

"Just consider for a moment or two the cash value of these motives. Take these 100 men at $4.00 per day, and we are putting in the pay envelope each year $120,000, out of which, as we have just seen, we are losing $30,000. Twenty-five per cent loss in the payroll isn't very much after all, that is, it isn't very hard to lose. It is only 12 cents an hour on a $4.00 wage, but don't forget this, there is an octopus with ten great arms reaching out after that 12 cents an hour loss—absenteeism, labor turnover, waste of time, waste of materials, waste of tools, spoilage of machinery, waste of supervision, under production in quality and quantity, inefficient procedure, dissatisfaction, reducing the loss down to 1 2/10 cents an hour for each item.

"You are asking, 'Is there a remedy, and if so, of what does it consist?' Yes, there is a remedy, and that remedy is education. And, while it seems a simple word, it is not as simple in its application as it seems to you at this time. I don't mean by education that you are to put seats in a certain room of your factory and then call in your employees and give them certain lessons like in a primary class. Not an education that comes from the executive down, but an education that comes from the men to the men in their own language, the very kind of an education that you give the customer when you call on him. You must place yourself on the customer's level and talk his language, that is the way that education must be applied to the employee.

"As a result of 14 years of practical experience in industrial coordination, we have learned that in the solution of this problem everything depends upon the sincerity and spirit with which you approach it. The method of education is no less important.

"Bear in mind that there has already developed a gulf between management and employee and any outward move by management would likely be viewed with suspicion and distrust. Some one would raise the cry, 'What's up the boss' sleeve?' 'What's he trying to put over on us now?' Again, any stereotyped method of education cannot wholly accomplish the purpose, since it fails to deal with existing pertinent factors, and if the message should be paradoxical with the grievous existing condition, it is likely to do much harm.

"Finally, any direct means 'handed down' by management cannot prove effective until the barrier of mistrust now existing has been torn down and a constructive foundation of common understanding, sympathy and appreciation has been built up in its stead. For it is a scientific fact that the same causes will produce the same results.

"The remedy, nevertheless, as I have stated before, lies in education, but in order that this may be intelligently applied, there must first be a correct understanding by management of the viewpoint of the employee as to the working conditions, wages, supervision, facilities and environment This analysis can be made by skilled man engineers without in any way disturbing the policy of administration, but careful procedure is necessary in order that this viewpoint will be free of bias and prejudice.

"Second, such conditions as are found to exist which present cause for real grievance and which are correctable should be removed.

"Then a systematic well-prepared organized campaign of education should be launched, based on careful study. This education should deal with the advantages of our form of government, our industrial system, opportunities for learning and for commercial progress and happiness, and a correct understanding of simple economics so that he may appreciate the many beneficial possibilities afforded him.

"The employee should and could be made to understand why the pyramiding of wages without a consistent increase in production is fundamentally unsound and must ultimately react to his own disadvantage, since labor consumes from 80 to 85 per cent of all that is produced.

"Your workers can be made to realize that it is the purchase power of the dollar, not the dollar itself, that is the determining factor of their gain. And of equal importance, they could and should be acquainted with the many advantages of 'Stick-to-it-ive-ness' on the job, of the particularly favorable and attractive conditions of the plant in which they are employed, and especially of how it will benefit them most if they will serve their employer best and give him their maximum cooperation. They should be disillusioned from such fancied grievances as they may bear, and their negative thoughts should be supplanted by sound understanding of the rebounding gains to them by observance of fundamentals of good will.

"If the workman can be influenced to actions which react to his own loss and disadvantage, then it stands to reason that by square dealing and correct teaching, he can be molded constructively. But this education must be conducted on a practical basis and in a manner which the employee will be receptive to, will understand and will believe.

"By fostering cooperation rather than competition between management and wage earner, a real worth while, work-together spirit can be established with substantial gains to both the employer and the employee.

"All this can be done and is being done where there is proper application and the results are most gratifying."

Mr. Fannon's address was the concluding feature of the program. The president appointed R. W. Philip and David Clark to act as official delegates from the Southern Textile Association to the convention of the Texas Textile Association, soon to be held, to convey the greetings and commendation of the Southern Association on the work being done along textile lines in the Lone Star State.

The meeting adjourned after a motion that the time and place of the annual meeting be left to the discretion of the president and vice-president. After the convention, a brief meeting of the officers and board of governors was called by President Dilling.

Atlantic Mills, Olneyville, R. I., have recently awarded a contract for further work in humidification, with automatic control, to the Parks-Cramer Company of Fitchburg, Mass. This, it is stated, makes the Atlantic Mills one of the largest users of Parks-Cramer apparatus. The Pacific Mills, Cocheco Division, Dover, N. H., have awarded the Parks-Cramer a contract for additions to their humidifier system, including the installation of automatic humidity regulation.

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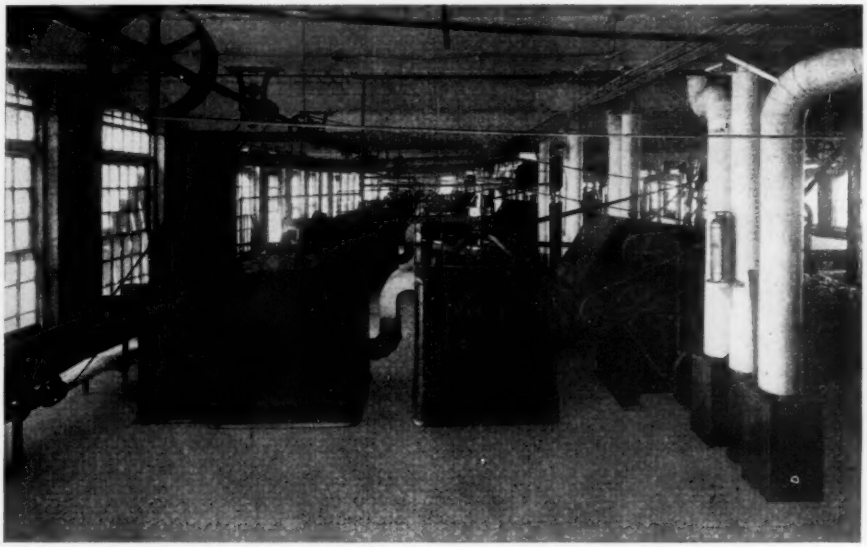

Opening Room, White Oak Mills, Proximity Manufacturing Company, Greensboro, N. C.

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What the Southern Mills are Doing

A new textile association is the Association of Manufacturers of Colored Cotton Goods, which was organized at a meeting held recently in Greensboro, N. C. The aim of the association is to further the use and distribution of colored cotton goods, and to obtain statistics and other information regarding this branch of the trade. It is expected that ultimately the association will extend its scope to include mills all over the United States.

Some 31,500 looms were represented at the organization meeting, at which J. Leake Spencer, of the Highland Park Mills, Charlotte, N. C., was elected president of the organization; A. J. Graham, of Greenville, S. C., vice-president; and C. Singleton Green, of Charlotte, acting secretary.

A resolution was adopted requesting the commission merchants, who are responsible for styling, to give this matter serious attention, and develop more effective methods in creating original styles and in the quicker utilization of popular selling fashions in all frabrics adaptable to reproduction or imitation on colored cotton dress goods looms.

* * *

A better situation in the industry during the past month is reflected in the items of new construction and expansion.

North Carolina seems to lead the other states in the number of projects of activity announced.

One announcement of wide interest is that a plant to manufacture plush fabrics is to be established by the Cumberland Plush Mills, Cumberland, N. C., which has been organized with an authorized capital of $600,000. Clifton Corley and W. E. DuPre and others are the incorporators. Mr. Corley, who is president of the new company, is president of the Corley Mills, of Cumberland, which has been taken over by the new plant and will be enlarged and remodeled, and the Vardry Mills, of Greenville, S. C., and Mr. DuPre is treasurer of both these mills.

Report is to the effect that the Sayles Finishing Company, of Saylesville, R. I., are soon to begin actual construction work on their new plant near Asheville, N. C. This has been contemplated for some time. J. E. Sirrine & Company, of Greenville, S. C., are the engineers.

The Cannon Manufacturing Company, Concord, N. C., has begun the erection of 24 additional houses in their village.

Q. E. Herman, architect, of Hickory, N. C., has, it is understood, plans under way for an addition to the cotton mill at Maiden, N. C.

It is understood that the American Yarn & Processing Company, Mount Holly, N. C., intends to purchase equipment for the manufacture of shoe laces, etc., including automatic machinery for attaching metal tips to the laces.

The Beacon Manufacturing Company, Swannanoa, N. C., has placed order for humidification equipment for their new plant with the American Moistening Company, Boston, Mass.

The Hanes Dyeing & Finishing Company, Winston-Salem, N. C., has awarded contract for the erection of its new plant, which will be 282x122 feet. Lockwood, Greene & Company are the engineers, and the plant will be erected by T. C. Thompson & Company, Charlotte, N. C.

The Minneola Mfg. Company, Gibsonville, N. C., has placed an order for humidifying equipment for its new addition. This equipment will be secured from the American Moistening Company, Boston, Mass. The Minneola addition will soon be completed, and will be equipped with 500 new looms. The addition will be 228x192 feet, of standard construction. J. E. Sirrine & Company, Greenville, S. C., are the engineers.

Erwin Cotton Mills Co., Duke, N. C., have awarded contract to the Elliott Building Company, Hickory, N. C., for the erection of a store building in the mill village.

The Enoree Manufacturing Company, Enoree, S. C., has placed order for 310 high speed automatic looms manufactured by the Hopedale Manufacturing Company, Milford, Massachusetts.

Grace Cotton Mills, Rutherfordton, N. C., is building an addition to be 228x132 feet, one story with basement. Approximately 8,000 new spindles will be installed in this addition.

The new Blacksburg Spinning Mills, Blacksburg, S. C., will be placed in operation during December, it was announced by C. N. Alexander, general manager. Cottages are being constructed in the village and machinery installed in the mill. This company took over the plant originated as the Cash Cotton Mills, headed by the late E. R. Cash.

The Jenkins Mills, Woodruff, S. C., are to install 100 novelty looms, furnished by the Draper Corporation, of Hopedale, Mass., it is announced. Curtain goods will be manufactured, it is understood.

It is contemplated by the Valley Falls Mills, Spartanburg, S. C., to install extra wide looms for the manufacture of bedspreads, according to report.

It is reported that the Abbeville Cotton Mills, Abbeville, S. C., will construct 100 new cottages in their mill village.

Lincoln Mills of Alabama, at Huntsville, Ala., have awarded contract for the extension of their humidifying system to the American Moistening Company, Atlanta, Ga.

Micolas Cotton Mills, Opp, Ala., have awarded contract to T. F. Winston for the erection of 30 new houses for operatives, for provision for the night shift recently started at the plant.

Lane Cotton Mills, New Orleans, La., are having various improvements made, which include the installation of a complete humidifying system by the American Moistening Company, of Atlanta, Ga. The Summerville Cotton Mills, at Summerville, Ga., also have secured a complete humidifying system from these manufacturers.

J. R. Dover, and associates, of Shelby, N. C., will erect another mill, for the manufacture of specialties, to be known as the Ora Mills, it is announced. J. E. Sirrine & Company, Greenville, S. C., are the architects and engineers.

Plans are progressing for the mill to be built at Griffin, Ga., by W. F. Ingram and associates. The plant will contain 10,000 spindles and 400 looms, it is stated. J. E. Sirrine & Company are the engineers.

Hartwell Mills No. 2, Toccoa, Ga., have made a number of improvements recently, including the installation of a new slasher cylinder, the laying of maple floors, and overhauling of machinery.

Eastman Cotton Mills, Eastman, Ga., are planning an installation of additional equipment within a short time,

An airplane X-ray view of your plant

If an airplane were to take an X-ray photograph through the roofs of your plant, it would show thousands of items of value—machines, motors, pipes, beams, typewriters, pumps, tools. The picture would show the plant as a whole, but it would fail to give you a complete record of all the "property dollars" represented.

"Where is such and such a machine?" "How long have we had this piece of equipment?" "When will we have to replace that pump?" "Who made these motors?" "How much are those partitions worth?" "What is the lay-out of machinery in Department B?" These and a thousand questions like them are answered accurately, quickly and completely by An American Appraisal.

Values are shown for the complete plant, for each building, for each type of property, for each insurance risk, each department, each plant account, or any other segregation desired.

All totals are supported by detailed, provable values for each unit of property.

An American Appraisal assures accuracy, disinterestedness and provability in property analysis and valuation.

A generation of experience supports its statements of values.

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INVESTIGATIONS, VALUATIONS, REPORTS — INDUSTRIALS, PUBLIC UTILITIES, NATURAL RESOURCES

An American Appraisal

THE AUTHORITY

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it is reported.

Ten new 60-inch Draper looms have been installed at the Scottdale Mills, Scottdale, Ga.

Crown Cotton Mills, Dalton, Ga., have begun day and night operation of the four new Barber-Colman automatic spoolers and three high speed warpers. Fifteen Barber-Colman twister creels are being installed, and all the mill's twisters are being changed over for the new system.

It is understood the Lawrenceville Mills, Lawrenceville, Ga., will install a number of additional looms in their plant.

Michaels & Bivens, Gastonia, N. C., have the contract for the power and lighting installation of the Gloria Textile Corporation, Johnson City, Tenn. Lockwood, Green & Company, Charlotte, N. C., are the engineers.

A $2,000,000 cotton mill project for Greenville, Tenn., is proposed. R. L. Warner, chairman of the board of directors of the Tennessee Electric Power Co., and W. H. Reaves, of Johnson City, are interested.

The C. R. Miller Mfg. Co., which operate the Miller Cotton Mills, at Waco, Texas, have increased their capitalization from $1,750,000 to $3,250,000, for building an additional cotton mill. The new plant will manufacture Turkish towels for the western and southwestern trade, and will contain about 10,000 spindles with accompanying machinery, including a bleachery.

Dallas Cotton Mills, Dallas, Texas, will replace plain looms with those of an automatic type. The mill at present is testing out 21 looms in operation. The installation will be approximately 300 looms, it is stated.

Report states that the Elberton Mill, at Elberton, Ga., has renewed operations. The plant has been remodeled, new machinery added, the village repaired, and a complete force of overseers engaged. T. N. Colley, of Grantville, Ga., is president and general manager of the organization. Mr. Colley was graduated from the Georgia School of Technology in 1920.

Lanett Cotton Mills, West Point, Ga., are to complete the development of the new school grounds from plans of E. S. Draper, landscape architect and engineer, Charlotte and Atlanta, including grading, construction of walks and drives, drainage and planting. The Lanett Bleachery and Dye Works also have retained the Draper organization for plans to develop the mill grounds and the grounds of the filter plant.

Beacon Manufacturing Co., Swannanoa, N. C., are building a mill village development from plans by E. S. Draper.

The New England Mill Situation.

Decided improvement has taken place in New England mill conditions in the past month. Sales of goods have been made more readily and mills have started more machinery. Since election the spread of confidence has been active and general. The fall meeting of the National Association of Cotton Manufacturers held in Boston in the second week of this month was very well attended and was in sharp contrast with that held in April. At that time manufacturers were very much depressed. They suggested the adoption of a "New England Week" campaign for the purpose of making the general public better acquainted with their industries.

This campaign was fruitful in many ways and particularly in the direction of stirring up more optimism among the manufacturers themselves. It also gave a popular impetus to the movement that has been afoot for a long time to diversify the product of the mills and pay more attention to the methods of marketing. The reflection of the change was notable at the meeting.

Other factors of more importance have also added to the cheerfulness. The cotton crop promises well and will give an abundance for the first time in four years. The price is lower and manufacturers feel that goods such as they make will sell better on the lower price level they hope they can maintain. The election of President Coolidge naturally gratified New England men. On the last day of the convention, William M. Butler, who had managed the Presidential campaign, was appointed U. S. senator from Massachusetts to succeed the late Henry Cabot Lodge, and his son, the treasurer of the Butler mills of New Bedford, was elected president of the manufacturers' association. All of these things tended toward more confidence in New England and its future. It is apparent that the industries of the section will not lack for proper representation in legislative circles, and it is from adverse legislation that New England has been suffering of late years.

The improvement in trade has been steady. It has not yet become widespread enough to warrant restoring activity in all the mills but the trend is in the right direction. Manufacturers feel that as the winter goes on the demand for goods will increase steadily and will afford work enough to keep unemployment within bounds.

There are still many unsettling factors at work in the trade here. The Amoskeag Company found it necessary to cut its opening price on spring dress ginghams to meet the lower prices named by southern manufacturers and after this reduction was met in the markets it took some time to restore buying to its normal levels. The prices named were so low that no profit was possible. At the same time the business began to come in and the operatives accepted a wage reduction of 10 per cent in the hope that it would assist in enabling the plant to resume operations.

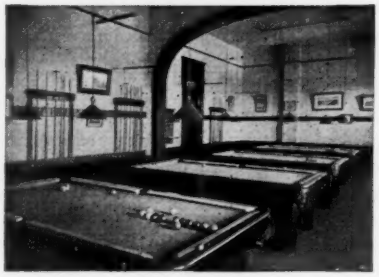
Other New England mills decided not to follow the Amoskeag lead, openly at least, preferring to trade where they could and allow the big company to make the competitive struggle deemed necessary in restoring profitable prices for the output. It is going to take some weeks to readjust the marketing situation on these particular cloths and the best thing in the situation is that the public is being attracted toward ginghams more generally than for a year or more.

The gingham mills are not operating to more than 65 per cent capacity but the belief is that gains will be made as the retail spring selling season approaches. Some other colored goods mills are not running in full but have been gaining. Denims, trouserings, stripes and chambrays, have not sold as freely as gray cloths for converting in both fine and carded yarn cloths. Wide sheeting mills have been running along steadily. In the past month machinery operations have gained fully a third and continued improvement is assured.

Wage reductions were accepted in two of the B. B. & R. Knight mills in Rhode Island a month ago and work was resumed in two mills where Fruit of the Loom gray cloths are made. The price was reduced to 19 cents from 19½ cents and sales have been large enough to assure that the two large mills will be kept running to the end of the year at least. Reorganization of this sub-division of the Con-

For better good will and higher efficiency

Katherine Hall Y. M. C. A. Department of Ware Shoals Mfg. Co., Ware Shoals, S. C.



The Billiard Room

KATHERINE HALL
YOUNG MEN'S CHRISTIAN ASSOCIATION
(Department of Ware Shoals Mfg. Co.)

WARE SHOALS, S. C.

June 28, 1924

Brunswick-Balke-Collender Co.,
35 So. Forsyth St.,
Atlanta, Ga.,

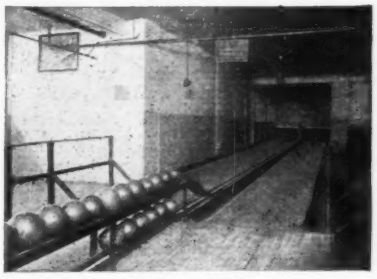
Dear Sirs:

We have your letter at hand regarding the bowling equipment and billiard tables that we have been using for several years.

It is right to say that this feature of co-operation between ourselves and employees has brought out benefits that have meant better good-will and higher efficiency, general co-operation and a marked increase in productive lines. There is no doubt but that the equipment held here for the benefit of the employees brings better satisfaction for them, thus helping to solve the labor turnover.

The equipment that we secured of you has given entire satisfaction. The bowling alleys have been used since 1913 and are in good condition now. Two years ago we exchanged the two original tables we had and put in two additional, making four in all and we take this method in expressing our entire satisfaction for the service that we have received from all of these. We can at all times recommend your equipment to any one desiring equipment of the highest type and also equipment that will give the longest term of service.

Very truly yours,
KATHERINE HALL Y. W. C. A.
Jessie D. Brewer
Secretary



The Bowling Alleys

TO have high class recreation facilities at the disposal of employees at all times during their leisure hours is a PAYING investment for employers.

This is amply attested by the experience of the Ware Shoals Manufacturing Company, Ware Shoals, S. C., whose letter is reproduced above. This firm found that facilities for billiards and bowling in the employees' Y. M. C. A. Department not only "have meant better good will and higher efficiency" but they also "bring better satisfaction for them (employees), thus helping to solve the labor turn-over."

Known everywhere as makers of the world's finest billiard and bowling equipment, The Brunswick-Balke-Collender Company is in a position to assist any employer of labor in working out plans for utilizing these popular pastimes as a means of securing better good will and higher efficiency.

Anyone interested in such welfare work should write direct to our home office. Full information will be supplied promptly and—without obligation.

The BRUNSWICK-BALKE-COLLENDER *Company*
Branch houses in the principal cities in the United States and Canada
623-633 South Wabash Avenue, CHICAGO

solidated Textile Co. is looked for in the near future, interest on bonds having been defaulted and action on the part of bondholders invited.

There is considerable objection being raised to the needed revisions of wages in other mills. Some Fall River plants will not be started unless lower wages are accepted but no united action on the subject seems probable. A younger element has been forging to the forefront in manufacturing matters and there is a strong desire expressed not to cut wages if it can be avoided. It is proposed to effect savings in other directions that will compensate in part for the higher wage schedules maintained here. The subject was talked of very freely at the manufacturers' convention.

The elections in New Hampshire and Rhode Island are believed to have removed, for the time being, any danger of the enactment of 48-hour legislation by incoming legislators of those states. When orders come forward in large enough volume the mills of those states will run 54 hours weekly thus restoring the conditions that prevailed before the war and helping to make competition with southern mills more nearly possible. The resumption of a 54-hour schedule by the Amoskeag Company is one of the things at which the labor unions are driving, especially those centers in New York and affiliated with the A. F. of L., and more radical national organizations. There is no likelihood that Massachusetts will go back to a 54-hour working time and the most now hoped for is that agitation in other New England centers will be more moderate.

New Bedford mills are running much better than they were a month ago. Business on fancy goods has been better than on plain weaves. Broadcloths, sateens, silk and cotton crepes, shirtings of a fancy description, voiles, and pongees make up the bulk of the work on the looms. Artificial silk is being used very largely in fancy weaves.

Mill management has been criticized sharply all over New England for some months and at the annual meetings some changes have taken place. The most important one in New Bedford was in the Sharp Mfg. Co., Arthur Sharp retiring and new interests taking hold.

The Firestone Tire Company interests have bought the Sanford spinning Mills in Fall River, and the Goodyear rubber and tire interests have bought the Rotch Mfg. Co. plants in New Bedford. Both of these companies have been using the tire products of the mills. The fact that they bought in New England instead of in the South has aroused much comment and has led to more comment concerning future possibilities of spinning and weaving in this section.

Quite a controversy has been going on concerning two different reports of earnings made by the Amoskeag Company, one to stockholders, showing a manufacturing loss for last year of more than two and a half million dollars, and another made to the United States government purporting to show earnings of $5,000,000 in the same time.

The varying reports are explained by the fact that the one to the government was made in accordance with Federal revenue requirements, and for the calendar year of 1923, while the other was made in accordance with the time-honored methods of mill office bookkeeping, and running from June of 1923 to June of 1924. The losses in manufacturing this year have been greater than at any time in 20 years and some men say greater than ever known before. Despite these losses the average dividends have been fairly well maintained although many were paid from reserve accounts.

Conditions in Fall River still remain unsatisfactory among many of the mills equipped to make print cloth yarn goods only. There are half a dozen of them shut down, and one or two large plants have not operated a spindle since early in the year. Sales of print cloths in one week recently reached 300,000 pieces there and were the largest for the year. The American Printing Company has been running its printing plant in full, and the Algonquin in the same city of Fall River, has not operated less than 50 per cent at any time during the depression.

There are also some mills making sateens, hospital gauzes and fine specialties in Fall River that continue to operate well and to pay regular dividends. Hardly more than 55 per cent of the capacity of the city's mills is engaged at this time.

Reports from the various finishing companies of New England show that business has been improving steadily since the middle of September. At the present time the bleacheries are quite active, the large Pacific bleachery being operated in full. The dyeing plants are running a little better than two-thirds full. Recently the placing of forward orders for finishing has been decidedly more active.

The styling and marketing of goods is destined to be a continuous topic among manufacturers for some time to come as the subject disclosed a growing degree of interest when opened up at the recent manufacturers' meeting. Instead of leaving such matters to selling agents the tendency now is to take it up in the hope that out of it all will come some new method of distributing branded goods of a staple character, and new goods of a novelty character to the retail trade. At present, advertising methods are receiving more attention than real merchandising plans dependent on salespeople. Considerable money is going to be wasted in various avenues before the mills have solved the difficulty of getting novelties to market profitably enough to warrant handling them in volume at the mills.

Cotton Comment.

BY H. AND B. BEER.

New Orleans, November 12th, 1924.

In our review of last month we stated that, while it was possible for the market to work somewhat lower, prices again were getting low enough to justify trade buying on the part of domestic mills.

Meanwhile crop prospects have increased, the latest of government returns, as of November 1st, indicating a yield of 12,816,000 bales compared with prospects for 12,499,000 bales, as of October 1st. Nevertheless, the market is about one cent, or about 100 points higher than one month ago.

The improvement in values is due to an outburst of bullish enthusiasm following results of the recent elections in England and the United States. In England the conservatives gained control of the government, and the administration won in America.

Trade and commercial interests were much elated over the results of the elections on both sides of the Atlantic, and the opinion was freely expressed that big business would not be interfered with for a long time to come. In fact constructive legislation was predicted on all sides, which

H & B AMERICAN MACHINE COMPANY

PAWTUCKET, R. I.

BUILDERS OF

COTTON MACHINERY

DUPLEX CARDING DEVICE

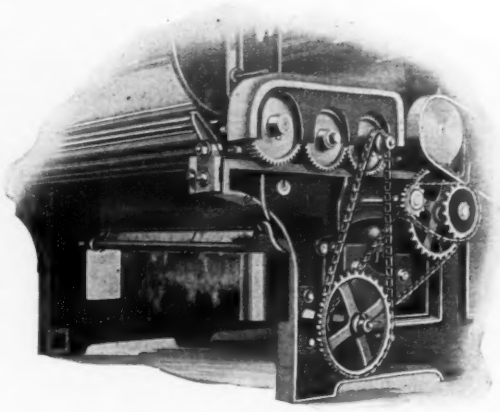
The object of this device is to remove Motes, Leaf, Short Fibres and Foreign Substances from the cotton before it reaches the Cylinder and Flat Clothing.

This device can be applied to any make of revolving flat card.

Being simple in construction and operation, and having no high speed parts to wear, this device is inexpensive to operate, and requires very little attention.

The advantages of this device are increased life to Cylinder and Flat Clothing, less stripping and grinding and ability to permit card strippings being put back into regular mixing.

More than 5700 Devices in successful operation in over 500 mills.



Write for further particulars.

SOUTHERN OFFICE

814-816 ATLANTA TRUST CO. BUILDING
ATLANTA, GEORGIA

was reflected in the boom in the stock market and in grain, in which cotton participated to a limited extent; the size of the crop, in view of prospects for a larger world's consumption, being a secondary consideration.

So far predictions for a revival in trade, especially in the textile industry, have been realized, which is noted by a better demand for cotton goods at home and abroad, with prospects for a further expansion in business.

An index to the probability of trade continuing to expand, especially in England, is located in the fact that spinners using American cotton in England, who were running their mills during the summer on only a 26¼ weekly hour schedule, increased their working hours to 32 hours weekly on November 1st, and have since decided to increase their weekly working hours to 39½ hours, effective December 1st.

While there is a large amount of cotton in the South waiting to be marketed, the southern producer is better off financially than he ever was, and southern banks have an abundance of funds at low rates for financing the unmarketed portion of the crop, much of which is going into the hands of the cooperative associations to be held for higher prices.

To November 1st 9, 695,000 bales were ginned, against 7,556,000 to the corresponding date last year, and on the basis of the government's crop forecast—12,816,000 bales, 75.6 per cent of the crop was ginned to the 1st of November vs. 74.3 per cent last year.

The impression prevails that European spinners will not miss the opportunity of procuring as much of this year's crop, which is comparatively high in grade, made possible by the glorious weather for picking and ginning this season, as possible, not only for this season's requirements, but also for a part of next season's wants, rather than risk the uncertainty of next year's yield, which may be reduced to small proportions in event of weevil becoming destructive next year.

It behooves American spinners, therefore, to obtain their future wants while the supply is large and the price moderate, as there exists an urgent demand from foreign mills, as noted by the large exports so far this season and pending for the future.

STATISTICS.

Bales—	This Season	Last Season
Marketed Aug. 1 to Nov 7.....	5,727,000	4,908,000
Exports from U. S. Aug. 1 to Nov. 7.	2,198,000	1,826,000
Spin. takings Aug. 1 to Nov. 7.....	3,120,000	2,965,000
World's vis. supply of Am., Nov. 7..	3,534,000	2,781,000
World's vis. supply, foreign, Nov. 7.	842,000	969,000
World's vis. supply, all kinds, Nov. 7.	4,376,000	3,750,000

Increasing trade buying is anticipated in the future.

The stockholders of Joseph T. Ryerson & Son, Inc., Chicago, Ill., have purchased a substantial interest in the Reed-Smith Company, Milwaukee, which is an independent steel warehousing company serving the industry in that section of the country. Under the new plan the officers of the Reed-Smith Company are D. M. Ryerson, president; George W. Smith, vice-president and general manager; E. L. Hartig, treasurer, and Carl Gallauer, secretary. The Milwaukee stocks and facilities of the Reed-Smith Company are to be increased for better service.

NOTES ABOUT MEN YOU KNOW OR KNOW ABOUT

W. F. CASON has been selected secretary of the Brogon Mills, Anderson, S. C., succeeding G. T. McGregor, resigned. S. H. Lander was appointed assistant treasurer.

GENERAL LAWRENCE D. TYSON, former president of the American Cotton Manufacturers Association, was elected U. S. Senator from Tennessee in the recent election. He was the Democratic nominee.

L. L. HASKINS has become associated with the Akron Belting Company, of Akron, Ohio, and will represent them in a sales capacity in North and South Carolina, West Virginia, Virginia and Eastern Tennessee. Mr. Haskins is well known in the textile industry, having for several years represented E. F. Houghton & Company in the Carolina territory. M. H. Whatley, of Opelika, Ala., who for several years has covered the entire South for the Akron Belting Company, will in the future confine his traveling to Georgia, Florida, Alabama, Mississippi and Western Tennessee.

J. G. GILLESPIE has resigned as overseer of weaving at the Drayton Mills, Drayton, S. C., and has accepted a position with the Judson Mills, Greenville, S. C.

R. L. HULSEY has become overseer of carding at the Pomona Mills, Greensboro, N. C., succeeding H. P. Hunt. He formerly held a similar position at the Brogon Mills, Anderson, S. C.

T. L. AYERS, formerly with the Riverside & Toxaway Mills, Anderson, S. C., has succeeded Mr. Hulsey as overseer of carding at the Brogon Mills, Anderson.

L. A. STARNES has become overseer of spinning at the Vance Cotton Mills, Salisbury, N. C., succeeding C. H. Johnson, resigned. Mr. Starnes formerly was with the Cannon Mills plant at Concord, N. C.

GEORGE WILMARTH FOSTER, of the Universal Winding Company, died at his home in Providence, R. I., recently at the age of 50 years, following an illness of pneumonia. Mr. Foster was one of the better known and more popular figures in the textile industry. He had been associated with the Universal Winding Company since 1914, and was engaged in the designing and developing of new machines and attachments.

T. H. QUIGLEY, regional director of the Federal Board for Vocational Education, Washington, will on January 1st become director of vocational education in the Parker School District, Greenville, S. C. He succeeds C. W. McSwain, who resigned a short time ago to become assistant southern manager for the Steel Heddle Manufacturing Company.

C. C. GAULT has become overseer of spinning at the Mary Louise Mills, Mayo, S. C.

LEON W. CAMPBELL has become associated with the Borne, Scrymser Company, of New York, in a sales capacity, and will represent the concern on their Brilliant AX line of lubricating oils. Mr. Campbell was formerly connected with the Eclipse Textile Devices, Inc., of Elmira, N. Y. In his new connection he will make headquarters in Atlanta, Ga.

J. C. SMITH, secretary and treasurer of the Shelby Cotton Mills, Shelby, N. C., died on November 11th. He was 70 years of age.

SAMUEL C. VANN, president of the Sterling Mills, Franklinton, N. C., died on November 11th at his home. He was 73 years of age.

JAMES T. BARKER, JR., has accepted the superintendency of the Green River Manufacturing Company, Tuxedo, N. C. Mr. Barker was formerly with the Brighton Mills, Passaic, N. J. At Tuxedo he succeeds H. E. Erwin, who has become superintendent of the W. S. Gray Mills No. 2, at Woodruff, S. C.

J. H. BAGWELL has succeeded C. F. Turner as superintendent of the Lullwater Manufacturing Company, at Greenville, S. C. He was formerly at the Mansfield Mills, Lumberton, N. C.

L. W. ROGERS has become overseer of spinning at the Hartwell Mills, Hartwell, Ga.

JOSEPH TAYLOR has been made overseer of spinning at the Henry Cotton Mills, Hawkinsville, Ga.

D. C. COLLIER, formerly treasurer and general manager of the Collier Mills, Inc., Barnesville, Ga., is now on a trip to England and the Continent. It is understood Mr. Collier will re-enter the textile business next year.

E. W. EDWARDS has resigned as superinendent of the Hamilton Carhart Cotton Mills, Rock Hill, S. C., to accept a similar position with the Patterson Mills Co., Roanoke Rapids, N. C.

A. W. FARIS, formerly overseer of spinning, No. 1 Mill, Fulton Bag & Cotton Mills, Atlanta, Ga., is now connected with the Henderson (N. C.) Cotton Mills.

S. R. POWER has returned to his former position as superintendent of the Broad River Mills, Blacksburg, S. C. For the past few years he has been superintendent of the Hamrick and Limestone Mills, at Gaffney, S. C.

CLIFFORD SWIFT, vice-president of the Swift Spinning Mills, Columbus, Ga., is the president of the Columbus Textile Association.

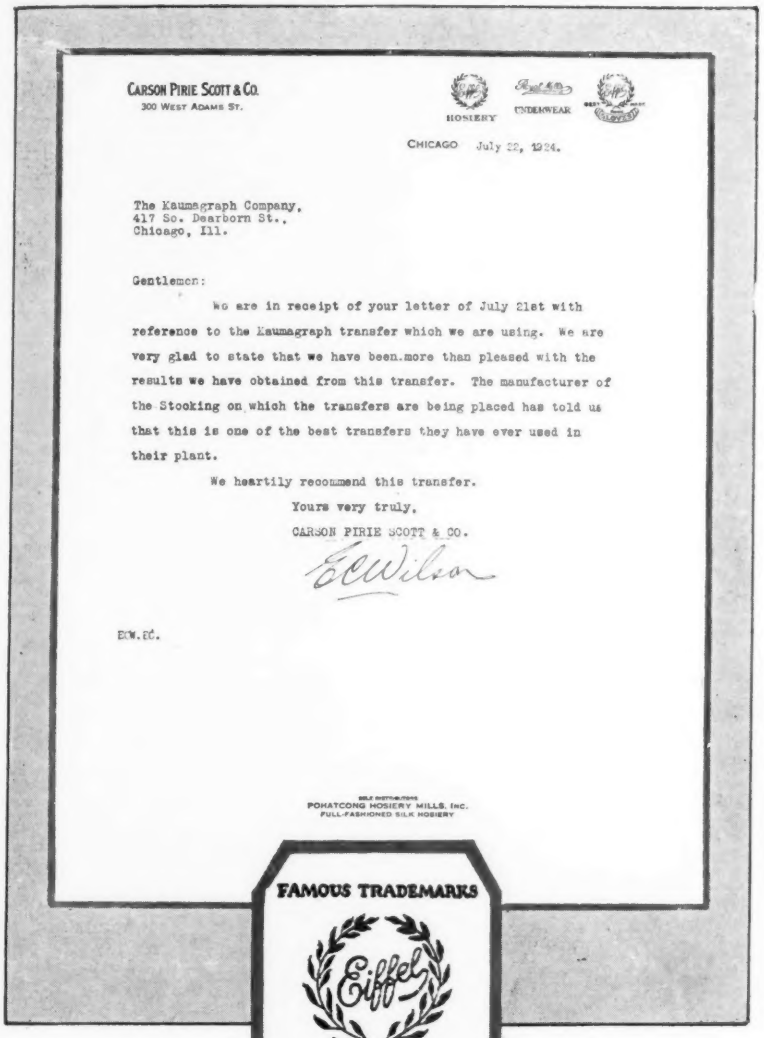
J. R. CLARK is the superintendent of the recently organized Oconee Manufacturing Company, Walhalla, S. C.

H. M. DEASON has resigned as overseer of carding and spinning at the Micolas Cotton Mills, Opp, Ala., to become overseer of carding and spinning at the mill of the Delta Land Co., West Helena, Arkansas.

C. C. ARTHUR recently accepted the position of overseer of carding at the Waxahachie Cotton Mills, Waxahachie, Texas. He formerly held a similar position at the Brazos Valley Cotton Mills, West, Texas.

E. L. GOBLE is now overseer of carding at the Brazos Valley Cotton Mills, West, Texas.

W. F. SMITH, formerly at the Bibb Mfg. Company, Reynolds, Ga., is now superintendent of the Waco Twine Mill, Waco, Texas.



CARSON PIRIE SCOTT & CO.
300 WEST ADAMS ST.

HOSIERY UNDERWEAR

CHICAGO July 22, 1924.

The Kaumagraph Company,
417 So. Dearborn St.,
Chicago, Ill.

Gentlemen:

We are in receipt of your letter of July 21st with reference to the Kaumagraph transfer which we are using. We are very glad to state that we have been more than pleased with the results we have obtained from this transfer. The manufacturer of the Stocking on which the transfers are being placed has told us that this is one of the best transfers they have ever used in their plant.

We heartily recommend this transfer.

Yours very truly,
CARSON PIRIE SCOTT & CO.

E C Wilson

ECW.EC.

SILK DISTINCTIONS
POHATCONG HOSIERY MILLS, Inc.
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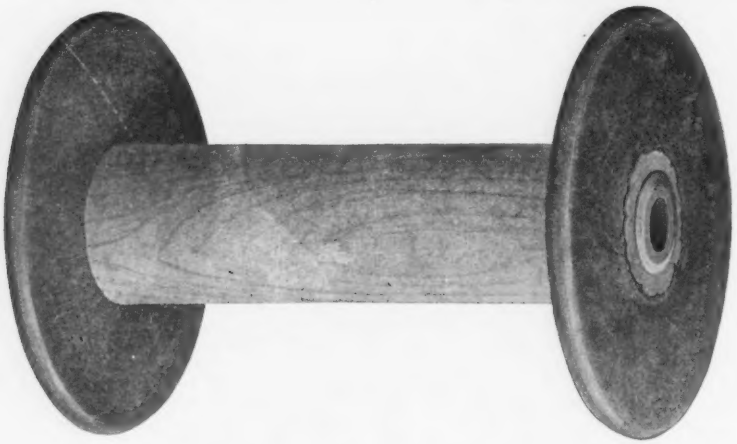

Spools and Profits

TEXTILE executives know from past experience that while spools are a necessary part of their equipment, they figure materially in the yearly profits and losses of them. The selection of the spool to be used should not be undertaken until after a thorough investigation and tests have been made to determine which spool is best adapted to certain kinds of work. Many times a light weight softwood spool or the Boynton Shield protected spool is advisable rather than the fibre head spool.

However, there are certain advantages to be gained by the use of U S Fibre Head Spoools, such as toughness for a thin head, allowing a greater traverse for the same length overall as a wood spool, fewer replacements, and the elimination for a greater length of time from rough edges which will develop on plain wooden spools.

We do NOT guarantee that fibre head spools cannot be broken, nor do we guarantee they will not crack, warp or chip—but we DO guarantee that our method of applying the head to the barrel is unexcelled, as we take extra precautions in manufacturing these spools to maintain the same high standard of U S Quality that distinguishes our other products.

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AN OLD TIMER SAYS

I think it was a very smart guy who said *"Winners don't knock,"* so we will just add to that wise saying that *"Knockers don't win."*

* * * *

You know, dear readers, that if we would only take seriously the many good things we read we would all be more successful, more considerate of the other fellow's feelings and more happy ourselves.

Of course you know that if you are not happy—if you are not enjoying life—if you are not really in love with your work—there is not a darn soul on earth to blame but *you.*

Do you remember that article "Old Timer" wrote about the five thousand dollar job (or man) and the ten thousand dollar job? When you get the "blues" and just feel like you don't give a d— look through your files of COTTON and read that article again.

As I said before, if we would only take to ourselves personally the good things we read, we would derive so much more benefit from them.

* * * *

A "Safety First" sign reads: "Don't count on the other fellow's common sense. Use your own." The trouble with most of us is that we do so many things without giving them any thought until *after* we have done them.

You, of course, have heard that old saying about if our front sights were only as good as our rear sights what great men we would all be. Yes, we all know that, but we don't get right down to brass tacks and make the effort to profit by that knowledge.

* * * *

One of the best boss weavers that I know, can't hold a job more than a year or two. That statement does not sound logical, but it is an actual fact. I know he has the knowledge and experience to run a large weave room successfully. I once worked for him. He has had some of the best jobs in the country—did fine on them for a while—then he would begin to lose his "pep" and first thing you know his name appears in the personal columns as "Resigned."

How about *you?* Are you getting old on your job?

* * * *

It is not always knowledge that brings success, but the man who is willing to make personal sacrifices—the man who has the bull dog tenacity to keep digging—the man who makes a study of every phase of his work—the man who is willing to give and take—the man who feels as though he owned his job and that every dollar is his own personal money to be dealt with accordingly—that's what counts.

* * * *

Our jobs may be compared to a bank. You cannot *take out* if you do not *put in.* We get in returns in proportion to what we give in service. If that other overseer or superintendent is getting more for his work than you are, just remember he is giving more of his services than you are. The mill president is not paying him just because he thinks he is a nice fellow.

* * * *

Experience may be compared to a book in which is recorded the work of every overseer and superintendent. Each day a new chapter is added to this great volume. Each book has an index that we should refer to in everything we do—what we do today should be intelligently guided by what we did in the past—but, sad to say, so many of us go blundering along as if we had no book of experience to refer to. Then we think that overseer or superintendent who passes by us is "lucky."

* * * *

The road to that bigger job is a long one with many steep grades—there are many places where you will have to put on chains—the thing to do is to have the chains when you need them.

The road that is easy to travel—anybody can travel, therefore it is full of overseers and superintendents who are just drifting along with the crowd and incidentally getting the same pay that the crowd is getting.

You can't get something for nothing. But the majority of men seem to think so, judging by the way they run their jobs.

* * * *

Yes, I'll admit that mistakes are better never made. However, that is almost impossible for any human being—the thing which makes the boss so darned mad is for you to make that same mistake again.

* * * *

Your job is either in better or worse shape each day as a result of your work and influence that day.

Please note I said *your* job. That seems to be the one hard thing for an operative to realize. He is forever thinking in his own mind that these machines belong to the company, when if he could only realize that they really belong to him, as long as he is entrusted with the work of operating them, he would make more money and have more pleasure in his work. Most every overseer or superintendent realizes this is true. All right then—are you, Mr. Overseer or Superintendent, not more intelligent than the operative?

Think it over.

Audit the Past and Budget the Future

Business today, with all its human factors, is an exact science. The dividends of success are earned by managers whose operations are based upon dependable *facts* and figures.

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Progressive management *knows that it must know*, and budgets the future. Elimination of ignorance and guess-work is as necessary to business as profit itself—for the SAVING MADE thereby *IS* profit—just as the difference between cost and selling price is profit.

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The Rubber Roll Makers

HOW OTHER MEN MANAGE

Practical Discussions by Cotton's Readers On all varieties of Mill Subjects

What Causes the Thick Places?

EDITOR COTTON:

I would like to present to the readers of "How Other Men Manage" a problem that is confronting me; it is in the card room and refers to thick and thin roving. I run 7.00 and 5.30 hank roving. My roving seems to have a thick place about every eight or ten inches, sometimes closer together or further apart, it is not regular. In this thick place there seems to be much less twist than in the other places and at those places is where the yarn always comes apart when you pull it. There also seems to be a few thin places; this shows up much more on the spun yarn than on the roving.

I have set my rolls on every process to every reasonable setting, and settled on the setting from which I get the best results. I also have gone over my steel and leather rolls, have taken out my steel rolls and cleaned them and the stands, and replaced the front and back roll gears where needed; also the draft gears and draft gear studs and stands. Next I went over my train of twist gears, studs, stands and jack shafts. All of this seems to have helped very little. My breaking strength has dropped about eight per cent. None of the different processes in the card room could hardly run any better, from the frame-hands' standpoint; but the spinning is not running so well. If there is anything I have overlooked or failed to try in order to overcome this, I would appreciate any suggestions from your readers. My drafts are well proportioned.

G. D. S. (S. C.)

"The Watch Dog of the Mill."

EDITOR COTTON:

Please allow me elbow room enough to pass a few complimentary remarks about the cloth room boss. Of all the insects that abound around the cotton mill, he is without a doubt the doggonedest.

Everybody knows that overseers in general are a greatly undervalued, overworked, misunderstood set. None of them has ever gotten his just dues. Particularly the overseer of the cloth room. The only way I could ever think to get him what he is entitled to would be to swap him off for a goat and then sell the goat to a hotdog stand.

Other overseers, being human, vary in their qualities as might be expected; good, bad, and worse. Some of them are good men and bad bosses. Others are bad men and good bosses. Some are bad both ways, others are good neither way. Take your choice of all of them but the cloth room bosses. They are all exactly alike and grade so bad that they are never quite good enough to put into seconds. There may occasionally have lived a cloth room second hand with more or less civilized principles, but if there did, they all died off before they got promoted to the job.

We invite our readers to make use of this department for the discussion of any and all problems arising in the mill or the finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

"Stone walls do not a prison make, nor iron bars a cage" as the poet said, or words to that effect, meaning that there are always beautiful sights to be seen, even amid the dullest surroundings, beautiful thoughts to be thunk, even in the dullest heads. I have noticed it myself, especially on pay day, just before the paymaster comes around with his little envelope. I always feel a bit pepped up about then, but such feelings never get to the cloth room.

Whoever happens to have that job is a constitutionally sour individual with no ambition at all except to find defects in what somebody else has tried to make. He has a natural propensity for searching out faults in things, or, if none are visible, for cheerfully predicting that there will be some soon. His mind is set on light weight, narrow width, mis-weaves and off shades. He growls about them all day long and when he finally knocks off and goes home for supper, he continues to find thin places in the soup, gouts in the noodles, knots and bunches in the coffee, and drawbacks in the biscuits, and what is worse, he continues to orate about them until his wife grabs the loud speaker off the radio and whacks them both into silence with one and the same whack.

Such a misanthrope may serve a useful purpose. Maybe so, but I doubt it. I have been told by folks that had some secret, and, I am afraid not altogether respectable reason for defending some member of this tribe of joy killers, that cloth room bosses were the watch-dogs of the mill; that they kept the mill's blunders from going off to the customers; that they make or break the mill's reputation; that they keep the weaver and the rest of the organization warned when things were not going right so they could be corrected in time and that they deserved a lot of credit for it. Maybe so. For their own sakes, I hope so, but never could see any credit in cutting up a lot of cloth into rags and making a nuisance of themselves talking about it while they are at it. Anybody can do that.

We've got one of the darn things at our mill. Every time I run around and get things in such fine shape that production goes up too high and we have to take a half holiday for fear we will get too much and I have to explain to the boss that he hasn't gotten a seconds report for several weeks because there haven't been any seconds and all the machinery gets whiskers on it because there isn't a piece of spare cloth anywhere big enough to make a fan rag

Do you cut cast iron with a flame?

Cutting a cast iron gear wheel is only one of the many cutting operations that can be performed by means of the oxy-acetylene flame.

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THE EASIEST WAY to cut cast iron is by the oxy-acetylene process as developed by Oxweld. Every day Oxweld customers and Oxweld fieldmen are finding new applications of oxy-acetylene cutting. A few of these many applications are cutting sections for demolition and plant changes; beveling broken parts for welding; emergency wrecking to facilitate repair; cutting away debris to speed up reconstruction; salvaging valuable parts by cutting away cast iron retaining sections; cutting floor plates; cutting blast furnace hearth cooling plates; cutting cast iron columns and other structural members; cutting bolt holes; cutting large cast iron scrap to charging box sizes, etc.

IT HAS now been several years since our discovery of a practical method of cutting cast iron by the oxy-acetylene flame. This method was first discovered in the field. It was then perfected in the Oxweld laboratories, and since has been demonstrated and taught by Oxweld fieldmen to thousands of our customers' operators all over the country.

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out of, and I sneak off and sit down for a little well earned rest—

Here he comes. It's never failed yet. Just when I get my shoes off and my feet under the desk where nobody will notice them, and my chin propped up on one hand comfortably and the noise in the mill seems to be getting farther and farther off and my eyelids begin to get heavy and everything is peaceful and pretty, in bursts this nuisance.

"Come out here a minute," he says. "I got something to show you."

"I can't right now, I'm busy," I says, not wanting him to find out about the holes in my hosiery.

"Well, set there and sleep," he bawls back in a disrespectful voice. "I just wanted to tell you that everything around here is going to the dogs. The sheeting is too narrow to cover a decent sized bed, the gingham's got such holes in it, there'd be a piece in the paper about any woman that wore a dress made out of it, and the mosquito netting ain't got a hole in it for the mosquitoes to get through." And yow-yow-yow he goes just like that until I tell him to shut the door and he goes off mad about it and leaves me wide awake again and mad, too.

But what makes me madder yet, is that the darn pessimist is always right about it. In a day or two the seconds climb up and the production slides down until I have to go and dust around again and straighten up everything once more. Now you know nobody but a cloth room boss would do that. Every time I get things all right he goes and gets them all wrong again. That's why I hate him.

CONTRIBUTOR NO. 3649.

More Fine Points on Combing.

EDITOR COTTON:

Lately it seems the contributors to COTTON have turned their minds toward combing, and we have read several articles on this process. Each one seems to agree that a comber is a very important machine, as it handles only the finest cotton, destined for the finer grades and counts of yarn and that the machine is very complicated and hard to understand.

The first statement is very correct, as a comber is probably the most important in the chain of fine yarn producing machines; although a card is also very important, and we know even the much neglected doublers can make a lot of bad work. But the second thought regarding the understanding of combing principles is wrong, as a man can study out its action very easily and with less ability along mechanical lines than it takes to follow some of the controversies we read about cone outlines and bobbin lead fly frames.

For the first thing, I would like to have some of our comber experts explain this phenomena to me: A recent article in COTTON, pertaining to combing, advocated opening the drawing rolls on the sliver lapper as far as possible, as the only object of drawing here was to reduce the bulk of cotton and that parallelization was only a secondary object. The idea looked feasible. My rolls were then set at 1-9/16 and 1-15/16 running 1¼-inch cotton with a lap weighing around 565 grains. The rolls were changed as advocated; that is, opened to 1⅞ and 2¼. The gear stands would not allow opening any more.

Now comes that big mystery. Without making any other change the lap immediately came 20 grains lighter. The laps looked about the same as before, perhaps a little better, but what strikes me is, where did the 20 grains of cotton go? I ran this way for several days and then went back to my old setting, as I could not see enough advantage to change all the lappers over.

In the September number of COTTON appears an article on combing, signed "Jack (Mass.)," and there is much food for thought in it. The contention is, that the half lap combs 50 per cent of the cotton and the top comb 75 per cent. "Jack" claims that 90 per cent of the comber men do not know the fine points of combing, and I think he had better review both his percentages and see if he cannot rectify them a trifle. I do not believe any comber man can turn a comber by hand and accurately measure the length of fiber acted on by the half lap or top comb. I must repeat one of his paragraphs to refute it.

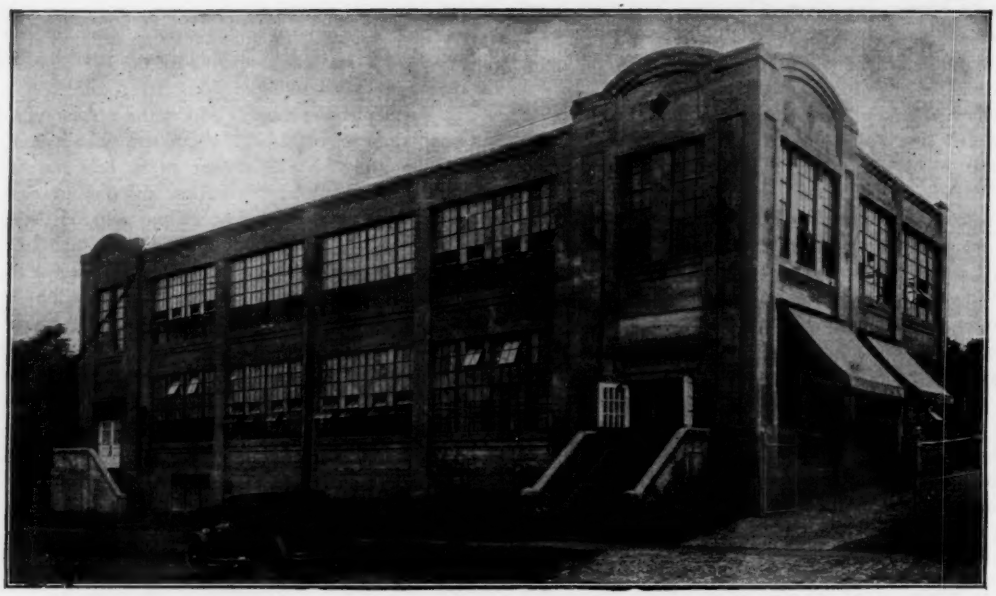
He says, "The nippers are closed tight, holding the lap, and the half lap comes around and combs the cotton hanging from the nippers. After the last row of needles has passed through the cotton, stop the comber and look at the cotton that has been combed and notice the length of it, which we will assume is ¾ of an inch—meaning the longest fibers protruding from the nippers. So if a man is combing 1-inch staple cotton there is ¼ inch of the longest fibers not being touched by the half lap and also the remaining length of the fibers that are protruding from the nipper from ¾ of an inch down to ⅛ of an inch or so."

I am going about it from another angle to show that the half lap combs almost all the fibers and not merely 50 per cent. My combers feed in 19.11 inches per minute. The cylinder makes 126 r.p.m. which = 126 ÷ 19.11 = 6.6 times the half lap passes through every inch delivered to it, or in other words, each turn of the half lap combs about 1/6 of 1 inch.

When the half lap has combed and the nippers start to open, the feed roll moves, but it only moves 1/5 of a turn and delivers about 1/3 of an inch of cotton. The feed rolls must be set from the detaching roll slightly over the staple so that when the tip ends of the combed fibers come under the bite of the detaching roll, they will be free from the bite of the feed rolls. When the tip of the fiber reaches the bite of the detaching rolls it has been acted on by the half lap not once but either five or six times. Then when the detaching roll pulls it forward it pulls it out from the bulk of the cotton exactly the same as we would do if stapling by hand. Here the top comb prevents any short fiber from being dragged along into the web.

If we should take the half lap out altogether and substitute a plate with seventeen-flutes the same height as the needles, what would the result be? Think that over. Of course we would take no waste out, as there would be nothing to carry it, but we would parallelize the fibers and separate the long and short fiber momentarily, but the short would go back with the long except what the top comb stopped.

In principle the comber is not a source of trouble, but in practice it is, simply because it has close settings and is called on to do work that preparatory machines should do. Neps and leaf come under this head. No comber was ever built to take out leaf, except what falls out the same as it would on a drawing frame. The primary object of a comber is to remove short fiber from a bulk of long staple, and



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it is the only machine that can do this in the mill. Give a comber cotton that has been properly carded and half your trouble will end.

The management of combers needs looking into and I believe we can get some valuable points brought out through COTTON. Suppose we try! M. W. H. (MASS.)

Some Questions from Maine.

EDITOR COTTON:

We have a lot of trouble with filling knocking off and weaving in on the small end and also on the barrel end of the bobbin. Our looms are 72-inch, 81-inch, 90-inch, 99-inch and 108-inch Draper looms. We run all feeler bobbins but not all feeler looms. We get more knocking off on looms without feelers than on the looms with feelers, as you know that the bottom of the bobbin on the feeler looms does not weave off.

I would also like to know what number traveler should be used on 25s yarn, spinning filling, and the length of build on the bobbin for that size of yarn.

Does it make any difference if the spindle on the frame is driven from over or under the cylinder?

The stock we are running here is 1 1/16 to 1⅛ inch, and I will say that we have had more trouble since the new crop of cotton came in than before, on the old cotton.

I have one more question: Do any of your readers know of any machine that will trim the selvage of a cut of cloth when taken from a Draper loom?

I shall appreciate the help of some of your readers on these points. P. T. S. (MAINE)

Splicing Tire Fabric Yarns.

EDITOR COTTON:

In a recent issue of COTTON a correspondent requested information covering the splicing of yarns for cord fabric. In the following I will attempt to discuss the splicing of yarns, not only for cord fabric but for the flat fabrics. While the making of cord fabrics has forged to the front very rapidly in the last two or three years, there is yet woven a considerable quantity of flat fabric.

The construction of the yarn for the flat fabric is generally 23/11, although some fabric is made up from 20/12. Formerly this was made from Sea Island or Egyptian cotton, and in most every instance combed. Of late, however, the combing process has been dispensed with in favor of a good job of carding, and a shorter staple cotton has been used. The long staple combed cotton yarns were very expensive, and in some mills on the flat fabric a resort to splicing was made to save waste. In other mills no splicing was done, the short ends of the yarn being wound on filling bobbins and run off in one or two looms set aside for this purpose. The accepted method of splicing the 23/11 yarn was to place two spools on spindles, one at the right and one at the left hand of the operator. Suitable flat spring clamps were provided, set about 10 inches apart, so that when the thread from each spool was in the clamp they paralleled each other about two inches apart for a distance of 16 inches. The twist was removed, and two ends from one strand were tied to two ends from the parallel strand, spacing the knots about an inch apart. The last strand to be spliced, of course, contained three ends, making five knots in a space of about 16 inches. The twist was then put back into the yarn, and the short end from one spool wound onto the other spool until it was filled. To prevent an excess of knots in any one strand some mills only splice once or twice on a spool. Where the customer would allow knots in the fabric the splicing was done by tying a figure 8 knot. Some users of tire fabric prohibited knots in the fabric, and the method then was to twist the two ends to be united about each other for six or eight turns. After the twist was put back into the completed splice the ends of the knots or the twists were carefully trimmed with a pair of sharp shears.

On the splicing of yarns for cord fabric made up of 13/3/3 or 13/4/5 much the same process was used. It is more universal practice, however, to twist the ends together than to tie them, as most tire factories specify no knots in the cord fabric. The rollers in the tire factories wherein the sheet of flat fabric is impregnated with rubber are set very close together so as to roll out the liquid rubber and to force it into the meshes of the cloth. Such a small protuberance as a knot would not pass readily between these rollers and would oftentimes cause a bad tear in the fabric, hence the tire manufacturer's objection to knots. On the cord fabric the tire manufacturer claims that a knot causes a small air pocket or blister in the manufactured tire which in time will set up an internal wear in the tire that will cause a blow-out.

A splicing outfit can be made as described above in any mill at a very small cost, it consisting simply of two upright spindles to hold the two yarn packages and two flat clamps made up from a piece of flat spring steel with a screw in the center, the ends of the springs being turned up slightly so that the yarn can be put under the springs without any difficulty. A machine especially designed for the splicing of yarns, which will take out the twist automatically, and has suitable clamps provided for the handling of the yarn, has been on the market for some time. This is known as the Brigham splicing machine, and is supplied by Arthur A. Brigham, the inventor, Boston, Mass. The writer has noted that patents were recently granted to Messrs. Kelley & Pearson of the Brighton Mills, Passaic, N. J., for a splicing machine.

Where cord fabric is woven from spools in a creel set behind the loom it either means that when the spools are exhausted the whole creel must be doffed and full spools tied over, or else there should be a continuous process of splicing which will not interfere with the production of the loom. It is a costly process to re-creel the loom each time the spools run out, not only from a labor standpoint but from loss of production of the loom, as it requires from three to four hours to complete this creeling process and a large amount of waste is made. It is possible to put two home-made splicing benches behind the creel, and two girls, one working on each side of the creel, can keep a loom in continuous operation. They watch the spools in the creels, and when they are down to but a few more yards to run, the spool is removed from the creel, all of the yarn wound off, and the end from the old spool is spliced to an end on a new spool, the slack yarn wound onto the new spool, the skewer inserted, and the spool put back into the creel. This method results in greatly increased loom production with practically no waste and a labor cost of very small proportions. This last method is really the

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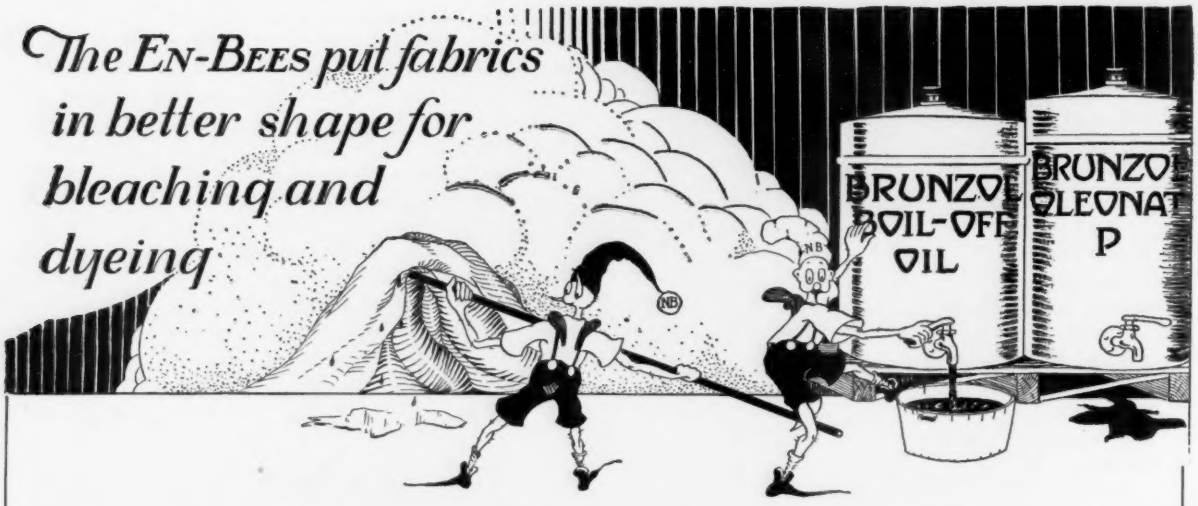

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answer to those mills who are weaving from creels rather than from beams, and if it is once tried out the overseer will be surprised at the ease and at the low cost with which his splicing problem can be solved. T. O. B. (MASS.)

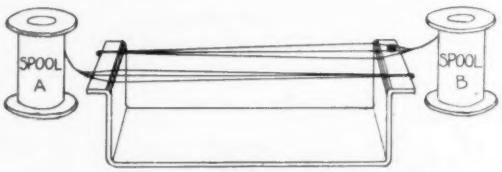
EDITOR COTTON:

Regarding the query of "D. N.," on splicing, I will try to explain how I have spliced 13s/3/3 yarn with good results.

Take the end of the yarn from spool A, see sketch, tie a knot in it and fasten it at the right side of the splicing table. Then run the twist back far enough so that the three strands can be made fast at the left side of the table.

Do the same with spool B from the other end, that is, knot the end of the yarn, fasten it at the left hand side of the splicing table. Run the twist back so the yarn can be made fast at the right side of the table.

Now we have the six ends open and ready for splicing. Cut a 3-ply from the knot end of spool A and one from the knot end of spool B and tie them in a square knot in



the center of the splicing table. Cut another 3-ply from the knot ends and tie in a square knot at the right of the center knot. Cut the last two 3-plys and tie at the left of the center knot.

The ends are now firmly tied together in a 3-ply without any twist.

Unclasp the yarn from the ends of the splicing table and let the twist run back in. By drawing the cord back and forth through the hands it will cause the ends to lay back in place very nicely.

Trim the knots practically even with the surface of the yarn and unless it has become soiled with the hands, I am sure you will have a very satisfactory splice.

The splicing table may be made of a flat piece of iron ⅛ inch thick and 3 inches wide. 12 inches between the sides are enough and can be 3 inches high and turned over at right angles. The top pieces are about 1 inch wide.

A narrow slot will be sufficient to hold the knot end. At the other side, after the twist has been removed, have a heavy piece of flat spring steel riveted on the top so that the ends will be held firmly without any twist getting back in.

To make a good splice it is very important that all the twist is shoved back of the splicing table and held firmly back until the knots are tied. M. J. (CONN.)

EDITOR COTTON:

Referring to the question on splicing yarn for tire fabric which appears in the September issue of COTTON on page 1151, I am taking this means of advising you of a patented splicing machine which is manufactured commercially on this side of the ocean. This machine will not splice the whole of the yarns as described, but only the last twisted portion.

The object of this machine is to splice double yarns instead of tying knots, thus producing what is called a "knotless" yarn. In the past, this work has generally been done on a small hand machine, splicing only two threads into one at a time, the work thus necessarily being slow and troublesome.

The patented machine to which I am referring, revolutionizes this process in that it has twenty-five spindles. Thus fifty threads are spliced into twenty-five at one time, the work being done by power instead of by hand.

The frame work of the machine consists of six iron stands with adjustable feet, these stands being connected together at the front and back with iron bars and further supported by an iron brace passing through the stands near the bottom. On the top of these stands a strong board is firmly fixed which runs the entire length of the machine, to which are fastened the spindle rails and the main twisting spindle shaft. The twisting spindles are attached to and driven by spiral wheels covered in with lengths of polished wood.

The machine is fitted with two creels, a single creel at the front for bobbins to be spliced and a double creel at the back for spliced bobbins and others waiting to be spliced. This double creel is adjustable and can be raised or lowered by means of a suitably weighted rack and is operated by a convenient hand wheel at the end of the machine.

In the operation of splicing, the work is carried on about as follows:

The bobbins or spools, whether from doubling or winding machines, are placed on the pegs of the front rail and a half a yard or so of yarn is unwound from each and passed through slots on the twisting spindles into clips at the back. In the back creel are placed the bobbins to which those at the front are to be spliced. Half a yard or so of yarn is also unwound from these spools at the back, the ends being secured by clips at the front; the latter being connected with the twisting spindle wheels. The two threads are thus placed side by side. The clips of the back row are fastened to a shaft and by a simple arrangement a slight turn is given by hand to this shaft and all the threads are instantly held taut. If, for example, there are twenty turns per inch to be taken out of the yarn and the back and front clips are set six inches apart, it means that a total of 120 turns are required to be taken out before the operation of splicing. This is accomplished as follows:

The lifting rack referred to previously is graduated and a pointer attached thereto moves along the face of an indicator which denotes the number of turns at any given point. In connection with this rack are two projecting fingers or studs which operate the knock-off motions. In order to take out the 120 turns, it is only necessary to turn the machine to such a position that the pointer indicates 120, and to then fasten the top finger or stud in that position in the rack by simply giving a half turn with the screw key; the machine is then started, and it automatically knocks off when the number of turns are taken out. The lower finger or stud always remains in one position. When a definite number of turns are required to be taken out, the rack and pointer are again set accordingly, the whole operation of changing from one twist to another taking only about a half minute.

When the twist has been taken out of the yarn, the

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operator proceeds to break loose the single strands from each pair of threads standing side by side and to splice them together with the fingers. After all the twenty-five sets are completed, the machine is again started when the same amount of twist that was taken out will be again put in before the machine automatically knocks off.

When the strands have been thus spliced together, forming a continuous thread, the spools from the front creel are placed side by side with those on the back creel and are then ready to be wound from one spool to the other in order to get all the yarn from two spools onto one.

It has been found convenient in practice to locate a machine of this character close to a winding machine, which saves effort in the transportation of the spools for winding, and other similar details. J. B. (ENGLAND.)

Some Card Room Questions.

EDITOR COTTON:

While the question is not exactly technical, I should be glad to see in "How Other Men Manage" some discussion and opinions on what constitute the duties of a third hand on speeders. Also, how can he detect, from appearance, what causes a smash and how it occurs?

G. S. (N. Y.)

Cotton and Uneven Yarn.

EDITOR COTTON:

Years ago, in the days of our grandfathers and grandmothers, there was no way to spin yarn except by the old hand-spinning wheel—and the yarn was considered first-class. But today we have some great improvements over the old spinning wheel. We have spinning frames driven by motor, and up-to-date in every way. And the result is that the old-fashioned hand-spinning wheel is set in the corner and looked at only as an antique.

And that is where "Wash's" flyer-lead speeder is, so far as the machine builders are concerned. It would be an insult to have a flyer-lead frame on the same floor with the bobbin-lead frame of today. How would the old hand-spinning wheel look standing beside one of the latest up-to-date spinning frames? Picture that in your mind and you will see just how the flyer lead would look standing beside one of our latest, up-to-date roving frames.

There seems to be a great deal of worry among many carders and superintendents about roving being stretched or strained, causing weak yarn. You can put this in your little vest pocket—that 99 per cent of the weak yarn is caused by poor cotton—and it doesn't matter what kind of machinery is used, a man can't get good strong yarn out of poor cotton. The flyer-lead frame would not improve the work in the least. A man must start the fly frame with the proper tension and put on the proper tension gear for the hank roving, and then let the speeder run, and if it runs a full set without any ends breaking, you can just bet your bottom dollar that the roving will not be strained or stretched. If there is any strain it will make itself known very promptly. I have seen speeders on which the ends would break and snap off at the presser, no matter how loose they were run. Why? Because the cotton was so poor they would break with any tension gear we could put on.

Many carders play with the tension too much. If they see the ends running a little loose, they order the gear changed to make them just a little tighter, and soon afterward the speeder tender's trouble starts. The ends will snap off at the presser and the speeder tender will keep piecing them up and trying to run the speeder. And there is where you are getting strained roving—when the ends are altogether too tight. And some speeder tenders will try for a half a day to keep the speeder running before reporting it to the overseer or second hand, and the result is so much strained roving gone to the spinning room for weak yarn. Whereas if the gear had been let alone in the first place, there would not have been any strained roving on that frame. The good old saying works in this case—"Don't trouble trouble until trouble troub'es you." If that saying was adhered to more it would save many a carder a lot of trouble.

I remember some time ago I was second hand in a card room. Every time the overseer came through he would take a walk around among the speeders and feel of the ends, and when I saw him I would get my wrench ready because I knew that meant to change the tension gear. The speeder tenders would be sitting down and the speeders apparently running well, but, nevertheless, Mr. Overseer said change the gear, and it had to be changed.

Soon afterward the speeder tenders would come to me with the same old song, "My ends are breaking all the time since you changed the gear." Doesn't that go to show that if the gear had been let alone everything would have been all right?

You will find that is the case a great many times in the mills today, especially in the small mills, for in large mills the overseer doesn't have time to play with the ends so much, and that makes it better for the work and the workers. Why, I have worked in card rooms where the tension was never changed only in cases where the hank roving was changed, and I never heard anything about strained roving, or weak yarn. Simply because they used good cotton and let the gears alone.

I have had speeder tenders come to me and tell me the ends were running too loose, and upon investigation, I would find only a few ends running loose while the rest were all right. Was that the speeder's fault? No. But it was the speeder tender's fault. Why? Because she never cleaned her flyers, and the result was they became plugged with waste and wouldn't draw the end through. After the flyers had been cleaned the ends were all right and I didn't have to change the tension gear. If I had changed it the ends would have been too tight. A man shouldn't have the gears changed every time a speeder tender finds fault, but should investigate and then use his own judgment. When you see a speeder tender on the window asleep, with his speeders running and not an end breaking all through the whole set, you can safely say that that set of roving was not strained or stretched.

With the grade of cotton that most mills are running today, there is little if any chance of the roving being strained or stretched without the overseer knowing all about it very soon. In order to prevent strained roving, I would say, "Don't throw out your bobbin-lead speeders and put in the flyer-lead, but use a better grade of cotton, and the machinery of today will do the work."

In the August issue "Wash" says at the present time it is almost impossible to manufacture cloth that will suit the buyers; and that he knows of cases in some of our largest

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cotton mills where every department was ordered closed during working hours, and every department head was called into the cloth room and put through the third degree. I wonder if the one who was putting them through the third degree said anything about the grade of cotton they were using. You can bet your old straw hat they did not. I've been put through the third degree myself for the same thing, but they said nothing about the cotton, but I can tell you that *I* did. But what good did it do?

My advice to the mills is that they try a little better grade of cotton, even if it does cost a cent or two more per pound; it will pay them in the long run, for their weak yarn troubles will be over. It is a very poor excuse to blame the bobbin-lead speeder with making weak yarn; you can't make silk out of card strippings even if you have "Wash's" flyer-lead speeders. No sir!

From what "Wash" says, if we take his word for it, all of the cotton mills practically are making weak yarn, as I don't think he will find many mills now using the flyer-lead frame. He speaks of a test he made to prove the bobbin-lead frame is all wrong. He says he ran one set of intermediate roving without one end coming down, and next he ran two sets with one end coming down on the second set, and three ends on the third set, making four ends down for the three sets of roving which was enough to fill the creel on the fine frame—and when it ran out he proved the bobbin-lead system was all wrong.

Now let me tell of a test I made and prove to "Wash" that the bobbin-lead system is not all wrong. I took charge of a carding room, and one of the first things I noticed was the way the roving was running out on all the speeders. I started to look around for the trouble and the first thing I noticed was the unevenness of the work. I began with the evener on the picker and went right on through to the jack frames. After I had the work about as even as I thought I could get it, I put it to a test to see how the roving would run out, doing it in the same way that "Wash" speaks of. I could see the difference with my eyes shut. The speeder tenders could put in their roving and not have to break out any pieces with one or two lays more than others, and all of my speeders are the bobbin-lead type. You see unevenness was the cause and nothing else. Before making the changes I could size the roving and get all kinds of hanks, and on the pickers the eveners wouldn't move if a whole bale of cotton went through the roll.

I think "Wash" might just as well bury the hatchet and call the flyer-lead system gone forever, for we don't need it in the mill business today.

EXPERIENCE (CONN.)

A. W. WIESE, sales engineer, Strom Ball Bearing Company, has been transferred from the Philadelphia office to the New England office at Hartford.

SAMUEL P. HELLAND is superintendent of the Kingsville Cotton Mills, Kingsville, Texas, which have been leased by the San Antonio (Texas) Cotton Mills.

B. J. BODDIE, formerly with the Georgia Duck & Cordage Mills, at Scottdale, Ga., has become overseer of weaving at the Lullwater Manufacturing Company, Greenville, S. C.

WALTER E. PARKER, agent emeritus of the Pacific Mills, Lawrence, Mass., died at his home in Lawrence on October 25th.

The Best Licker-in Speed.

EDITOR COTTON:

In response to "U. J. (N. C.)," who wanted advice as to the best licker-in speed for 1¼-inch cotton, we have decided, after many exhaustive tests, that the recommended speeds are the best. I will add that frequent grinding and accurate settings are the main factors in producing good work on this cotton.

I would be glad to go into the details of settings which we find best if it will be of any help to "U. J."

S. M. (GA.)

EDITOR COTTON:

It has been my experience to have taken the licker-in speed of every card in some 25 mills in both the South and East. The average licker-in speed seems to fall between 400 and 450 r.p.m. and this seems to be about the best speed that experience has found. Lowering the licker-in speed, to say 300, does not strip the nose plate fast enough, especially if the setting is close, and is liable to jam, especially if the lap is run heavy. Running the licker-in speed, say, 500 or greater might cause a break in the strength of the yarn, as it is liable to break the staple, especially if the staple is 1¼-inch, such as "U. J. (N. C.)" runs. I should recommend a speed of about 400 r.p.m. for his weight of lap and length of cotton.

W. R. J. (N. C.)

Sizing Wet Warps.

EDITOR COTTON:

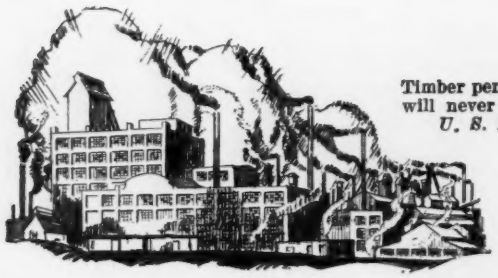
At the meeting of the "Textile Operating Executives of Georgia" at Atlanta on September 16th, 1924, there was a question asked as to the most practical method of sizing wet warps, that is, yarn dyed on section beams, where uniformity of sizing and good running work is required.

The writer has had some experience in this matter, and some of his conclusions may be of interest to some of the readers of your section "How Other Men Manage."

In sizing wet warps it is possible to get very good penetration and, in fact, very satisfactory sizing, with the exception that it is almost impossible to control the amount of weight added to the yarn. With the greatest care the variance may be as much as two per cent difference between the weight added to the yarn at the beginning and the end of a beam.

If it is practicable to partially dry the warp before entering the size, of course greater uniformity can be obtained, although with the usual methods adopted to carry out this operation there is not very satisfactory drying, and the economy of the operation is doubtful.

The size for use on wet warps should be especially prepared. It should be made of the thinnest boiling starch possible, preferably sixty to ninety fluidity. The writer prefers and recommends ninety fluidity. The high fluidity starch has greater powers of penetration and is more miscible with water, in other words, the thinner the solution of starch, the easier it is for it to enter the interstices between the fiber of the yarn (which are already filled with water) and either, to a certain extent displace, or thoroughly become mixed with, the water which is already absorbed in the yarn. To satisfactorily do this there must be careful



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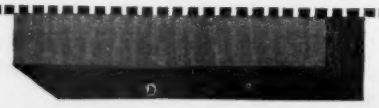

control of the temperature, and the size must be kept boiling (212 degrees Fahrenheit) throughout.

Sizing compounds or tallow are not satisfactory as softeners for sizing wet warps, the ingredient to use being some form of sulphonated oil. Sulphonated castor, corn or cocoanut oil, or sulphonated tallow are all good. Being readily soluble in water they easily become miscible with the water already in the yarn, and effective softening is obtained.

It might be well here to suggest that in all cases where colored warps are to be sized, sulphonated oil is the very best form of softener to use, as it tends to give brilliance to the color, at the same time being a very excellent softening agent. Fifty per cent sulphonated oil, or seventy-five per cent sulphonated oil can be used, the former in the proportion of about 18 pounds per hundred pounds of starch, and the latter in the proportion of about 12 pounds per hundred pounds of starch.

In figuring a size mixture for use on wet warps the writer has found the following method very satisfactory.

Ingredients.....90 Fluidity Starch
Sulphonated oil

Wanted to add 10 per cent weight.

The amount of water contained in the wet yarn should be figured (for purposes of illustration we will say it contains 35 per cent). We will also assume that the regular formula used by the mill in this example, to obtain 10 per cent added weight is:

40 Fluidity Starch	130 pounds
Tallow	10 pounds
Finished size	200 gallons

Approximately, this 200 gallons of size will size 1400 pounds of dry yarn and give an added weight of 10 per cent.

We also wish to add 10 per cent to wet yarn, although the latter contains 35 per cent of water, or approximately 27 per cent excess over the normal moisture content. 1400 pounds of dry yarn is therefore equivalent to approximately 1900 pounds of wet yarn, in other words, we should theoretically carry into our size, 500 pounds of water, in the process of sizing 1400 pounds of dry yarn (the equivalent of 1900 pounds of wet yarn). That would mean a dilution of 60 gallons to our 200 gallons of size, giving us a much lower added weight than we require, toward the end of the process.

The writer takes into account this dilution of the size when preparing the mix for the wet warps, and adds half of the extra quantity of starch required to take care of this dilution. In this case the 60 gallons of water going into the size would need to have 39 pounds of starch added to it to bring it to the same strength as the size mixture we started with.. The writer therefore would add half of this amount of exra starch to the mixture when made up. Instead of 130 pounds of starch to the 200 gallons of finished size, he would use 130 pounds + 19½ pounds. This would give a slightly stronger size mixture to commence with than would be required, but it offsets dilution considerably, and the variance in the weight added to the yarn is reduced to a minimum. It is a good system to keep a strong solution of starch boiling in a storage kettle ready to add to the size as soon as any weakening is observed.

The writer would replace the 40 fluidity starch used in the illustrative size mixing with 90 fluidity, for the reasons already stated. His formula would be:

90 Fluidity starch	149½ pounds
75 per cent sulphonated oil	18 pounds
Finished size	200 gallons

It is by no means claimed that this method of figuring will give a uniform amount of added weight to a wet yarn, but the writer has found it to be a very satisfactory method to use, and can positively assure that the use of high fluidity starch in conjunction with sulphonated oil, at 212 degrees Fahrenheit temperature in the size box, will give very good sizing to wet warps. N. P. R. (ILL.)

Purple Lining Cloth.

EDITOR COTTON:

Will you have the information prepared in "How Other Men Manage" telling how to proceed to duplicate the purple lining cloth of which I am attaching a sample.

Please outline the methods and machinery used to secure this finish. C. K. (WIS.)

EDITOR COTTON:

In reply to "C. K.," would advise him that the cloth in question is made something like this:

Length	125 yards
Width	31 inches
Counts per ¼-inch section	16 x 16 or 15 x 16
Weight	14¾ pounds
Finished width	29 inches

After singeing well on both sides, which can be done continuously by machine, they are scoured well and dyed on a single box machine in two runs to any shade required; they are dyed with direct colors and Glauber salt, and without washing are mangled and dried on the cylinder dryer. They can be dyed, mangled and dried continuously if so desired, but it does not pay an outside shop to do so.

After singeing, scouring, mangling and drying it is filled on the ordinary two bolled mangle, using a 10-pound weight on each lever with the following mixture:

Epsom salts	200 pounds
Glucose (60 degrees Tw.)	1 gallon
Lime Chloride (102 degrees Tw.)	1 gallon

Water sufficient to make, when dissolved, 100 gallons. After filling, the cloth is dryed on a cylinder drying machine and allowed to lie in a cool place until cold. It is then sprinkled, and after two hours, it is stretched, if necessary, and calendered the same as shown in Fig. 1 in October number, page 1271. In this case it is run twice, or, once each in Fig. 1 and once in Fig. 2. In this case it is run on Fig. 2 without friction. See and read "Moire Finish" in number 12, vol. 88 of this magazine, page 1271.

These goods may be dyed direct from the bale without singeing or scouring, but they are "wooly" and "motey" and do not hold their finish well and are generally inferior.

W. B. (ME.)

American Moistening Company, 251 Causeway St., Boston, Mass., announce they have just secured contract for a repeat order for humidifiers in the No. 2 Mill of the Dana Warp Mills, Westbrook, Maine. The Exeter Mfg. Company, Pittsfield, N. H., also have placed contract for a humidifying installation with the American Moistening Company.

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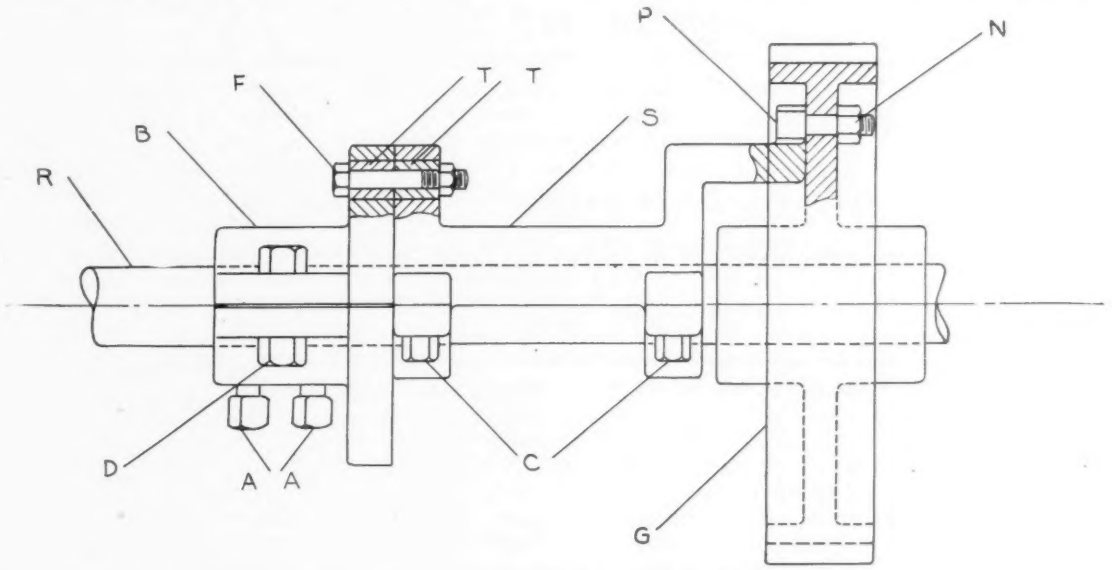
A New Loggerhead Release.

EDITOR COTTON:

There are few mills that have not been troubled at times with the loggerheads on the pickers breaking, or the lap rolls bending when the friction let-off hangs up. Of course, if everything is properly looked after, the let-off will not be likely to hang up, but it is a fact that lap rods are bent or broken, and loggerheads are broken in the best of mills. The leather may get dirty and hug the friction too tight, or sometimes a bright hand will put belt dressing or soap on the leather to make a tight lap, and next thing you have a smash somewhere.

A simple and effective safety device for preventing these troubles is shown in the cut. The friction drive gear G is ordinarily keyed or pinned to the shaft R on which the loggerhead rack gears are mounted. This key or pin is removed, so that the gear is loose on the shaft and can be driven by the safety mechanism.



A hole is drilled in the web of the gear, and a pin P, held in place by the nut N is fastened to the gear. The saddle-shaped piece S goes up against the web of the gear, and a slot in the end of this piece engages the pin P. This saddle, like the gear, is loose on the shaft, being fitted to an easy sliding fit. This allows the gear and saddle to turn as one piece.

The flange F is fastened to the shaft, and therefore turns with it. The saddle and the flange are then bolted together by the bolt B, which causes the flange to drive the saddle and gear. It will be noted that both saddle and flange are made in two pieces so that they can be put on the shaft without taking the shaft out of the picker. The straps that hold the saddle on the shaft are held on by the cap screws C, and the flange is held together by the bolts D. Set screws A fasten the flange to the shaft.

The bolt B runs through two tempered tool steel bushings TT which are pressed into the saddle and flange respectively. The operation of the device is of course obvious. If any excessive strain comes on the bolt B it will at once cut in two, releasing the saddle from the moving flange, and of course relieving the loggerheads of all pressure.

Since the friction let-off is thus cut loose from the loggerheads these can rise with the lap, and aside from making a soft lap, no harm is done. This matter of releasing both loggerheads at once is very important, as it prevents spoiling a lap and having to run it back through the hoppers. Where both heads are released at once the lap is always in good shape, and can be run back from the apron the same as if nothing had happened.

It only takes a minute or less to reset the device so that the picker can be started again. The tool steel, hardened bushings will cut the bolt off clean, leaving no burrs, and as the bolt only fits loosely in the bushings, it can be readily removed with the fingers. The hand wheel for raising the loggerheads is then turned until the bolt holes in the bushings come together, and a new bolt is put in. It is a good idea to tie a few of these bolts about an inch apart on a light string, and hang them under the front of the machine. This will allow the tender to reset his own machine without having to call a second hand, thus keeping the machines going. These bolts are the regular iron bolts that can be had at any hardware store or supply house. As all bolt makers use the same kind of iron, the use of a bolt instead of a pin or special key of some sort will insure always getting practically the same point of release.

If the frictions are in bad shape, or are soaped or treated with belt dressing, it will be impossible to run the picker until the let-off is put in proper condition, as bolts will cut off as fast as they are put in. This insures keeping the let-off in good working order.

As all pickers have the same general kind of arrangement for letting the loggerheads off, this device can be used to advantage on any type of machine. It is a commercial proposition and is, I believe, patented. X. O. (MASS.)

ALFRED G. NORRIS has been appointed manager of the New England office of the Strom Ball Bearing Mfg. Company, with offices at 75 Pearl St., Hartford, Conn. He has been identified with the ball bearing industry for a number of years and is well known among industrial engineers and manufacturers in the New England states.

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Figuring Breaking Strength.

EDITOR COTTON:

I will try to give "D. H. (N. C.)" a few suggestions which I hope will prove of benefit to him and at the same time be of use to others. Below is a rule for finding the standard breaking strength of carded warp yarns.

To find standard break strength of carded warp yarns add the counts of the yarn to 1900 (which is a constant figure for this class of yarn) and divide the total by the counts of the yarn. This rule is based on yarns spun when 4.75 is the twist multiplier used. On 40s yarn which he is spinning, this would give:

$$\frac{1900 + 40}{40} = 48.5 \text{ pounds breaking strength.}$$

As he is using only about 4.50 twist multiplier, he could hardly expect to produce a yarn to break at 48.5 pounds, but he should be able to get a break of 46 pounds with Arkansas cotton of the staple named. If "D. H." cannot get this break, there must be something wrong in the earlier processes.

I will name a few of the things which, in my opinion, tend to produce unevenness and consequently a poor break:

Not allowing the cotton to air properly before feeding into the bale breaker. At least 24 hours should be allowed from time of opening the bale to feeding the cotton into the bale breaker. A longer time should be allowed if possible.

The operator allowing the hopper to run almost empty and then stuffing it full to get a few spare moments to himself. If a hopper is used with the feed lattice so inclined that the bottom is larger than the top, the evil of stuffing full is not so pronounced, as the lattice in this style hopper does not bear the full weight of the cotton.

The evener motion on the pickers not being in proper working order can cause a lot of damage. Some men sadly neglect the picker room anyway. They think it is a place where they can shove in a lot of poor labor. This attitude is a grave mistake. The picking is the foundation of a well finished product.

Not sticking to the half-pound variation of the lap is another reason. One rule that it is well to be firm on is, never allow the picker hand to change the weight adjustment every time a lap runs a little off. Instruct them to wait for at least two laps.

Dull beater blades cause neppy work, and using too high a beater speed breaks the fibers. Fluffy laps are generally a sure sign of over-beating. Too much loose fiber around the card and draw frame trumpets is a bad sign. Examine this lint carefully now and then.

Operatives sometimes double too much when putting on new laps—causing five laps to be run or allowing one to run out.

In a case where over-beating exists, and yet we cannot reduce the number of blows per inch without making a dirty lap, a good way is to change the two blade beater, replacing it with a three blade, and then cut down on the speed about one-third. We still will have the same number of blows per inch, but the velocity has been decreased, so that the fiber will not receive so violent a blow.

If the equipment doesn't include a vertical opener or Crighton it is about time to send for a few catalogs and look over the descriptions. These machines improve the con-

dition of the cotton to an extent that is almost unbelievable. This type of opener is particularly adapted where the bale is opened and fed through immediately.

When we get to the card a few points to watch are:

Condition of licker-in. Keep the teeth sharp and straighten all bent teeth. Dull licker teeth makes the lap straggly and full of laps.

Avoid heavy laps, 11- or 12-ounce laps are good weights to use on 40s yarn. I always prefer a light lap as it can be cleaned more thoroughly and the fibers laid more parallel.

Over-drafting on the card is one of the worst evils throughout the entire work, in my estimation. A draft of 100 is a good average on practically all classes of yarn. A good range of drafts is from 80 to 120. The medium giving best results in most cases.

The top flat settings are a very important point in producing good work. My rule is to set as close as possible. Generally 7-7-8-8-9 is my pet setting. This requires a good solid floor, with the clothing in the pink of condition. Good carding can never be done on a floor that has any amount of vibration.

Lay off of cheap clothing. It is expensive.

See that the emery fillet on the grinding rolls is in good condition. Worn emery doesn't grind, it polishes.

Stick to a sliver of about 60 grains. This is not over heavy and at the same time is sufficiently strong to stand all necessary handling at the drawing with good results. (I once worked in a mill where they had been running a 96 grain sliver. It seems like an absurdity, but it is a fact. The carder was retired some two years ago. He should have been retired 20 years ago.)

When grinding, avoid setting too deep. Heavy grinding leaves rough edges on the wire and also draws the temper of the wire, leaving it soft.

Not taking a large enough percentage of waste will make weak yarn, as too many short fibers will be left in the stock.

Watch the card strips fall. See if each strip just hangs by a few threads.

On the drawing frames, watch the roll speeds. Too high speed causes excessive breakage.

Keep the draft equal to the doublings.

Wide roller settings will allow sliver to pull through in bunches. Close settings will not draft the sliver properly.

Don't let the tenders throw the end at the rolls when piecing up.

Keep the stop motions in good order.

I am not much in favor of evener draw frames, as an evener to be effective should act in back of the drawing rolls. When connected to the trumpet, the sliver is one continuous string of heavy and light sliver. Test it by the yard.

If metallic rolls are used make sure the collars aren't worn, as cut sliver is the result when the flutes mesh too deeply.

A few points to watch on roving frames include:

Too much twist produces hard drawing and cuts production. Often it weakens the yarn. Use just enough twist to stand up at the next machine.

Keep drafts as near medium as possible. A good range of drafts are:

4 PROCESS		3 PROCESS	
Slubber	3-5	Slubber	3-5
1st Inter.	4-6	1st Inter.	4-6
2nd Inter.	5-7	Roving	6-8
Roving	6-8	Spinning	10-12
Spinning	10-12		

Keep the rolls in good condition and see that they are kept properly oiled.

Don't allow frame tenders to make long piecings when ereeling in. Some tenders will have three ends running for one-half yard or so when ereeling.

See that clearers are kept free from excess waste.

Watch the tension very carefully. Stretched roving is a bad thing and can easily be avoided if watched carefully.

Don't allow a speeder tender to wind the cone belt back slightly to slacken up the ends instead of changing the tension gear. A good many tenders won't call the third hands attention to tight ends. They prefer to wind the cone back, but this can generally be detected by examining the taper on the bobbin. Some tenders are very clever at winding back the belt and it is hard to catch one in a case like that. But as a rule it is done in a crude manner.

It would be easy to fill a book on weak yarn, but I trust what I have written will prove of some practical value.

C. C. (N. J.)

The Spindle, the Traveler, the Twist.

EDITOR COTTON:

I realize the rights of all COTTON's readers and look upon all controversies which appear in COTTON as a method of improving our work and working conditions. Also, a method of obtaining a better understanding of what we are doing and the machine or machines we operate or have in charge.

I do not consider replies from the various contributors as criticism. In fact, I look upon COTTON as being one of the greatest textile schools in existence. We get instruction through COTTON that cannot be obtained elsewhere.

Having thus explained myself, I will proceed to reply to "N. T. (Tenn.)" and ask him some questions. He claims the spindle on a ring spinning frame to put the twist in the yarn, and, according to his argument, there will be less turns of twist per inch on the full bobbin than when it is near empty due to the variation of spindle speed with full and empty bobbins.

Now if "N. T." will think a little more and make examinations of his twist per inch on the full and the nearly empty bobbins, also his breaking strains, in both cases he will find this the reverse to his argument.

I think after examination "N. T." will find the yarn stronger on full bobbins and more turns of twist per inch.

Now there is another point to consider, and that is, in what way does the spindle act on the yarn or is the yarn at any time placed under direct twisting action of the spindle or does it not come under action of the traveler before coming under any action of the spindle and this action is only of winding?

I am of the opinion that the traveler has the same effect on the spinning frame as the flyer on the roving frame. It is a fact the bobbin has nothing to do with the twist in roving, and it is a fact that as the flyer twists and guides the roving to the bobbins in the roving frame so does the

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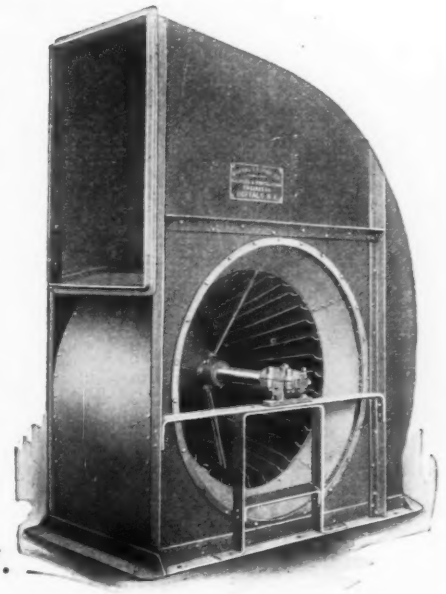

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traveler on the ring frame, and I, for one, fail to see how any twist can be put in the yarn directly by the spindle.

Now I think "N. T." will agree with me on more twist being in yarn on full bobbins than in yarn on nearly empty ones. T. A. A. (S. C.)

The Effect of Increasing Spindle Speed.

EDITOR COTTON:

"K. D. (Mass.)" is very vague in asking his questions in October COTTON, leaving us much to our own assumptions. The answer to these will be gotten by assuming that a frame is making this yarn and a change is desired. (We assume a twist factor of 4.75.)

The sq. root of 30s = 5.477.

5.447 × 4.75 = 26 turns per inch.

The rule to follow to find production by the spindle speed method is as follows:

Multiply the spindle speed by the minutes run; divide the answer by the sum of turns per inch × 840 (standard) × 36 inches in one yard × counts.

$$\frac{\text{Sp. Speed} \times \text{Hrs.} \times \text{Min.}}{(\text{turns} \times 840) \times 36 \times 30} = \frac{9{,}600 \times 54 \times 60}{(26 \times 840) \times 36 \times 30} = 1.318 \text{ pounds per spindle}$$

$$\frac{8{,}700 \times 54 \times 60}{(26 \times 840) \times 36 \times 30} = 1.195 \text{ pounds per spindle}$$

These answers represent 100 per cent efficiency for a 54-hour week as no allowance for stoppage has been considered.

If the inquirer knew what the production was for one of these spindle speeds, a simple proportion sum would have given him the answers already arrived at.

Assuming you are running at 8,700 r.p.m. and producing 1.195 pounds per spindle. What will 9,600 r.p.m. produce?

$$\frac{9{,}600 \times 1.195}{8{,}700} = 1.318 \text{ pounds per spindle}$$

I hope these answers are satisfactory to "K. D."

CHRISTY (MASS.)

EDITOR COTTON:

Assuming that "K. D. (Mass.)" is putting in 25.98 turns per inch twist ($\sqrt{30} \times 4.75$) and is running eight hours per day and allowing 10 per cent for loss, I give the following as my opinion of what the relative production of his spinning frame at the two speeds should be:

$$\frac{8700 \times 480 \times 0.90}{25.98 \times 36 \times 30 \times 840} = 0.159 \text{ pounds per spindle per day}$$

$$\frac{96 \times 480 \times 0.90}{25.98 \times 36 \times 30 \times 840} = 0.175 \text{ pounds per spindle per day}$$

I will now explain my method so that if my figures do not coincide with "K. D.'s" he may make the necessary changes.

Spindle speed divided by turns per inch gives inches delivered by the front roll per minute. This multiplied by minutes per day gives inches per day. To reduce the inches to yards divide by 36; then it takes (30s yarn multiplied by the constant 840); 25,200 yards of 30s yarn to weigh 1 pound. Therefore the total yards delivered divided by

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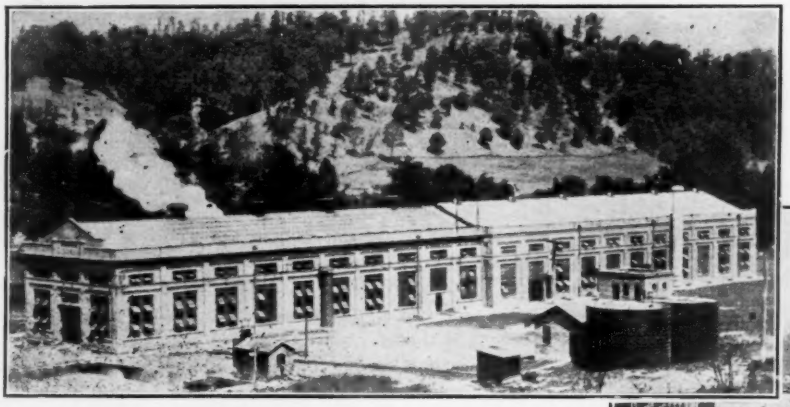

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the yards per pound will give pounds per spindle.

If "K. D." desires to increase his production I would suggest reducing the turns per inch as with cotton of 1⅛-inch staple it is not necessary to have 25 turns per inch twist. J. I. M. (CONN.)

EDITOR COTTON:

Replying to "K. D. (Mass.)" concerning his question in the October, 1924, issue of COTTON, namely: What is the relative production to be expected from two spinning frames making 30s warp from 1⅛-inch cotton, all factors being the same with the exception of the spindle speeds, one frame running 8,700 r.p.m. and the other 9,600 r.p.m.?

Now, since it is usually conceded that 30s warp yarn has approximately 26 twists per inch, with a front roll 1 inch diameter, a spindle speed of 8,700 r.p.m. would give a production per spindle of .201 pounds per day of 10 hours with allowance for cleaning, doffing and oiling.

So a spindle speed of 9,600 r.p.m. would give a relative production in a ratio as 96 is to 87, that is:

$$96 : 87 : .201 : X$$

$$96X = 17.487$$

$$X = .182$$

Therefore, the relative production between speeds of 8,700 and 9,600 r.p.m. would be a ratio as .201 is to .182.

I trust the above will give "K. D. (Mass.)" the information he desires. If not, I would be glad to try to further elucidate. H. D. (MASS.)

EDITOR COTTON:

Responding to the question of "K. D." in the October number, asking the relative production of a spinning frame with a spindle speed of 8,700 and 9,600 r.p.m.

He is making 30s yarn, and assuming he uses a twist factor of 4.00, this gives us $\sqrt{30} = 5.47 \times 4.00 = 22$ turns per inch. Now the following calculation gives the production per spindle per week:

Spindle speed × Minutes per hour × Hours run

Turns per in. × In. per yd. × yds. per hk. × hks. per lb.

Thus, using his lower spindle speed first:

$$\frac{8700 \times 60 \times 48}{22 \times 36 \times 840 \times 30} = 1.25 \text{ pounds per spindle per week.}$$

Figuring 97 per cent production gives us $1.25 \times .97 = 1.212$ pounds.

Now, using the higher spindle speed:

$$\frac{9600 \times 60 \times 48}{22 \times 36 \times 840 \times 30} = 1.39 \text{ pounds per spindle per week.}$$

Figuring 97 per cent production gives us $1.39 \times .97 = 1.348$ pounds.

$1.348 - 1.212 = .136$ pound difference.

On a 252 spindle frame, this difference would equal $.136 \times 252$ or 34.27 pounds per week per frame.

M. S. (MASS.)

EDITOR COTTON:

Answering the inquiry of the reader in the October issue who wanted to know the relative production of two spinning frames, one making 8,700 r.p.m. spindle speed, and the other 9,600 r.p.m.—other conditions being the same. He did not state the diameter of the front roll or the spin-

dles per frame. We will assume the front roll is one inch in diameter and that the frames have 204 spindles each, and as a basis we will assume the speed of the front roll is 125 r.p.m. for the 9,600 r.p.m. frame.

For the production of the 9,600 r.p.m. frame, multiply the revolutions per minute of the front roll × circumference in inches of the front roll, thus: 125 × 3.1416 = 392.7 or 393 inches of yarn delivered per minute.

Then divide the revolutions per minute of the spindle by the inches of yarn per minute, thus: 9,600 ÷ 393 = 24.50 turns per week.

Then multiply the revolutions per minute of front roll × circumference of front roll × minutes per day × percentage allowed for stoppage × spindles per frame, and divide this by inches per yard × yards per hank × number of yarn, thus:

$$\frac{125 \times 3.1416 \times 600 \times .95 \times 204}{36 \times 840 \times 30} = 53.3 \text{ pounds per day for}$$

the 9,600 r.p.m. frame.

For the 8,700 r.p.m. frame, divide the revolutions per minute of the spindle by the turns per inch, thus: 8,700 ÷ 24.50 = 355 inches of yarn delivered per minute.

Then divide the inches of yarn per minute by the circumference of the front roll, thus: 355 ÷ 3.1416 = 113 revolutions per minute of front roll. Then work out in proportion to the amount of yarn produced by the 9,600 r.p.m. frame, thus:

125 : 113 :: 53 : X

125X = 5989.

X = 47.92 or approximately 48 pounds of yarn per day for the 8,700 r.p.m. frame. C. Y. (N. C.)

Brown Shades.

EDITOR COTTON:

Please advise me, or have some of your correspondents through "How Other Men Manage" do so, as to what is the way brown, to satisfy the khaki demand, is to be dyed from common colors without using any of the mordant anilines or natural colors. I am most interested in cotton and silk. T. C. (PENN.)

EDITOR COTTON:

In reply to "T. C." I would say that brown, among all the present growing list of colors, is the most difficult to dye into khaki shades, i. e., those of the present era, because they are wanted fast and the mordant or natural colors are only those that will fill the bill fully, and they are too slow and too costly.

Khaki Brown W, however, may be dyed on cotton, silk, wool, linen, jute, wood, straw, leather and paper. Khaki Brown W is sold in paste form only, so far as I know, and it is absolutely essential that the color itself be boiled for ten minutes before using in order to get it properly into solution. If, through some carelessness, this is not done, the full color value is not got at, and the results are poor and unsatisfactory. This has given a great deal of trouble, from time to time, to the makers who have had to answer a great many complaints arising from this alone, and the blame has been laid upon the color alone. The goods, yarn or piece goods, should be entered at 120 degrees F. (no hotter) because the color commences to fall out of solution below this heat and does not dye right.

First of all comes cotton. Prepare this on an iron and tannin bottom, and proceed as follows: prepare a dyebath with the necessary amount of Khaki Brown W previously boiled for two minutes in a tub (wooden) or in a cistern containing a smaller quantity of water, and then fill up with water (keeping above 120 degrees F.); then just before the cotton is entered, add one-quarter of bichromate of soda (in weight) of the Khaki Brown W, and stir up the bath. On no account must the bichrome be added to the color. Enter the cotton at 120 degrees F., raise the bath to a boil and boil three-quarters of an hour. Wash. This shade of brown possesses good fastness to washing.

On silk two different shades are to be obtained by chroming in the bath in which copper vessels must be avoided. To begin with, the dyebath must be charged with the requisite amount of color which must be previously boiled for ten minutes in a tub or in a small quantity of water at the bottom of the dyebath. Fill up the dye cistern (or bath) just before the silk is entered and add one-quarter of the weight of bichromate of soda of the weight of the Khaki Brown W and stir up the bath. On no account must the bichrome be dissolved with the color, enter the silk at 120 degrees F. and raise the bath to the boil, boil half an hour and shut off the steam. Add three to five per cent of acetic acid—well diluted with water—turn on the steam and boil for a further half hour. Rinse, etc., if finished.

For the after-treatment with copper dissolve and dye as described with acetic acid (or ammonium acetate). After boiling one-half hour add one-eighth of the weight of copper sulphate (of dyestuff) and boil for a further half-hour. Rinse, etc., if finished. By this means a rich terra cotta brown is produced. The bath may be exhausted with sulphuric acid before using the copper sulphate, if found necessary.

Two shades of brown, both fast, are got by the foregoing. First, dyestuff and chrome; and dyestuff chrome and copper, where the copper is used wooden tubs *only* are not necessary. W. B. (MAINE)

Does the Size of the Traveler Affect the Twist?

EDITOR COTTON:

The discussion about whether the size of the traveler affects the twist of yarn can be best settled by analyzing the operation of the spindle and traveler, and their relation to each other.

Roving is fed through the front rolls at a uniform speed of a certain number of inches per minute, depending solely on the speed of the rolls. Twist is put in this roving by the rotation of the traveler around the spindle. To say that either the spindle or the traveler puts the twist in the yarn is to fail to state clearly just how the twisting is done. The spindle to be sure, puts the twist in by turning the traveler, but the amount of twist is determined by the speed of the traveler, which varies with the size of the bobbin.

The size or weight of the traveler has nothing to do with twist, except that if the bobbin is built very soft or very hard, so that in one case the yarn is wound on slack and in the other too tight, there would be a minute variation in the twist due to the slackening or stretching of the yarn. But if the weight of the traveler is sufficient to just build a nice bobbin, then variations either way within rea-

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son will not affect the twist enough to detect the variation.

The traveler simply feeds the yarn onto the bobbin at the desired point, keeps the yarn tight enough to lay well, and twists the yarn about itself to spin it.

As the yarn passing through the traveler and onto the bobbin is always tangential to the bobbin, the twist must be put in between the traveler and the rolls. A turn of twist can only be put in by rotating the yarn about itself one time, and it is the traveler that does the rotation, though the spindle naturally furnishes the pull.

The twist is therefore determined by the speed of the front rolls and the traveler, and not the speed of the spindle. While the roll speed and spindle speed are constant, the traveler speed is always different from each traverse. One writer thinks that there is a difference in spindle speed between a full bobbin and an empty one, but if this is the case it is due to belt slip, or slippage of the bobbin on the spindle. Theoretically, there is no variation in either front roll speed or spindle speed.

To account for the variation in traveler speed, it must be remembered that the spindle is winding the spun yarn up on itself all the time, so that the traveler never runs as fast as the spindle. If the front roll speed were sufficient to deliver yarn at the same linear speed as the surface of the bobbin, there would be no twisting action at all, the traveler, ceasing to travel, would merely be a guide for the yarn. At spinning speeds, the lag of the traveler behind the spindle can easily be calculated for any point in the filling of the bobbin.

Assume a front roll speed that will deliver 400 inches of roving a minute, and a bobbin of two inches circumference when empty, revolving at 7,000 rpm. Neglecting the contraction of the yarn due to twist, the bobbin has to put on 200 turns of yarn a minute so that the traveler speed will be 6,800 r.p.m. If the bobbin is four inches in circumference when full, the lag between spindle and traveler speed will be only 100 turns per minute, and the traveler speed will then be 6,900 r.p.m. so that there is more twist in the yarn as the bobbin becomes full.

On fine yarn with a fairly high twist this lag in the traveler does not make enough difference in the twist to be perceptible, but there is a possibility that in coarse yarn, where there is less twist per inch and the bobbins fill faster, that it might be noticeable, though it can easily be seen that the percentage of variation from this cause is very small indeed.

On heavy twisters, such as are used for plying cord for tires, this difference in twist amounts to much more than on a spinning frame.

Assume a cord twister on which the rolls deliver 300 inches of yarn per minute; a spindle speed of 2,000 r.p.m.; a bobbin with a barrel circumference of five inches, and a circumference when full of fifteen inches. Neglecting the contraction due to twisting, the bobbin will make 60 turns more than the traveler at starting to fill, and 20 more when full. This gives traveler, or twist speeds of 1,940 for the empty bobbin, and 1,980 for the full one. This amounts to a variation of two per cent in the twist, and as the twist is low, and the package fills rapidly, the cord would be affected by the traveler lag much more than fine yarn would.

These figures are all purely for illustrative purposes, and do not represent actual operating conditions insofar as spindle and roll speeds are concerned.

A. H. T. (MASS.)

EDITOR COTTON:

For several months I have been interested in reading the discussions by contributors to COTTON as to which puts in the twist on the ring frame, the traveler or the spindle. Just recently a theory has been advanced that a heavier traveler will put more twist in the yarn.

I want to say in conjunction with "N. T. (Tenn.)" that such a theory is an error. The traveler has only two duties to perform, namely, to guide the yarn onto the bobbin and to control the tension of the yarn.

If the traveler did have any effect on the amount of twist inserted in the yarn, it would prove to be a very annoying feature on the ring frame. Every time the weight of the traveler was changed for any reason, the twist would naturally be altered and this might necessitate changing the twist gear, and we know that this is not the case.

Not only does the traveler have no effect on the amount of twist in the yarn, but it takes no part in the actual twisting. A number of contributors state that the traveler inserts the twist, but from my standpoint, I don't see where it has the least part in the twisting operation. The amount of twist inserted is controlled by the speed of the front rolls and the speed of the spindles, minus the number of revolutions of the bobbin required to wind on the yarn delivered by the front rolls.

It is a fact, however, that for every revolution of the traveler, one turn of twist is inserted in the yarn. Possibly this is why many men argue that the traveler inserts the twist.

To get right down to the bottom of this long drawn out argument we must ask the question: What controls the speed of the traveler? The answer is obvious—the speed of the front rolls and the speed of the spindles.

The front rolls deliver a constant number of feet of yarn per minute, which calls for a certain number of revolutions of the bobbin to wind on this yarn. The bobbin, however, travels at a very much higher rate of speed than the front rolls, and after deducting the necessary number of revolutions that are required to wind on the yarn, we still have an excessive number of revolutions left. This excess speed is what controls the speed of the traveler and the amount of twist inserted in the yarn, so when we get right down to business, the spindle inserts the twist and the traveler is simply a means employed to wind on the yarn and furnish the required tension.

When the yarn is winding on the small part of the bobbin it would naturally require more revolutions of the bobbin to wind on the yarn delivered by the front rolls than when winding on the large diameter. This causes a small variation in the amount of twist inserted in the yarn, but it does not vary more than two per cent and is quite a negligible factor. This per cent of variation holds true in both filling and warp wind bobbins.

Below I am giving the rule I use to find the speed of the traveler:

To find the speed of the traveler multiply the circumference of the front roll by its r.p.m., and divide by the circumference of the empty bobbin. The result subtracted from the speed of the spindles will be the speed of the traveler.

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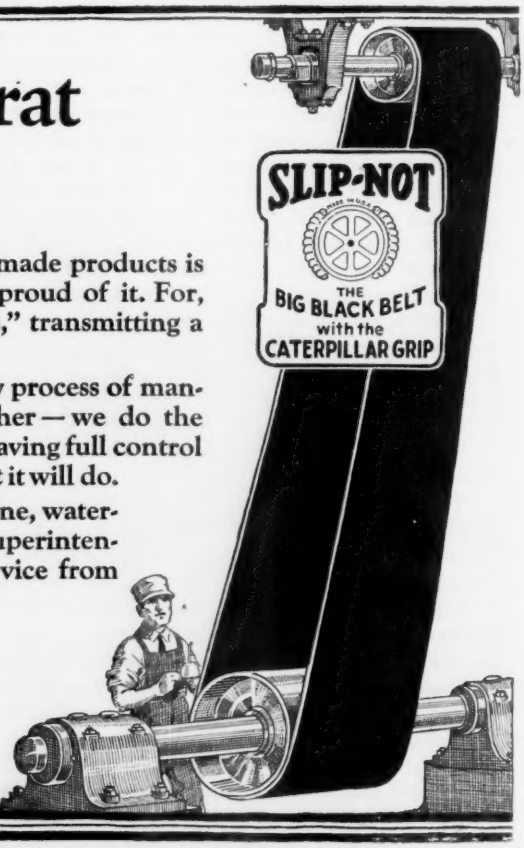

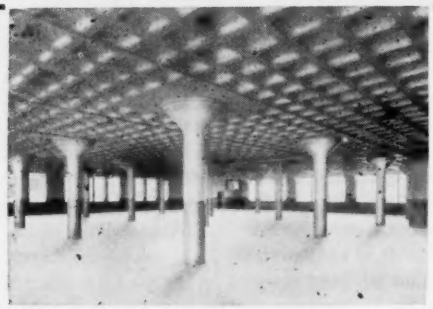

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As an example, let us assume we have a front roll of one inch diameter, running 120 r.p.m. The bobbin is ¾ of an inch in diameter and the spindles make 8512 r.p.m. This expressed mathematically, would be:

$$\frac{120 \times 1 \times 3.1416}{.75 \times 3.1416} = 160 \text{ r.p.m. necessary to wind on the}$$

yarn. Therefore 160 r.p.m. of the bobbin is necessary to wind on the yarn delivered by the front rolls. Subtract this from the r.p.m. of the spindles, 8512 — 160 = 8352 r.p.m. of the traveler.

If we want to find the twist per inch in this case, divide the r.p.m. of the traveler by the inches of yarn delivered by the front roll per minute:

$$\frac{8352}{120 \times 1 \times 3.1416} = 22.63 \text{ turns per inch.}$$

I have tried to show both by an explanation and an equation, that the spindle and not the traveler affects the twist. A simple test is to take an end out of the traveler and hold it. The end will twist up in short order. This ought to help convince those who claim the traveler does the twisting. C. C. (N. J.)

EDITOR COTTON:

There have been several articles written on this subject of the traveler and the twist and I agree quite fully with those who state that the twist on a ring frame is governed by the ratio of speed between the spindle and front roll. It is my opinion that the traveler functions as a guide for the yarn coming from the roll to the bobbin, at the same time acting as a tension weight as "N. T. (Tenn.)" states. "N. T." also refers to the variation in twist existing between a bobbin practically empty and a full bobbin. Theoretically there is more twist in the yarn as the bobbin diameter increases, for the winding r.p.m. of the bobbin decreases and the traveler speed increases thus increasing the twist per inch. As this bobbin diameter increases the traveler speed approaches the spindle speed. I doubt if this variation of twist to which "N. T." refers can be measured. For the same reason if one will run as light a traveler as possible and then try as heavy a traveler as possible I doubt if there will be any difference in twist that can be ascertained.

Now if we are to discuss this twist proposition with the idea of twist variation, someone of COTTON'S readers is going to come along and bring up such subjects as worn whirls, band or tape thicknesses, tensions under which the same are applied, etc. For instance a tape of a heavier thickness would result in a slower spindle speed, consequently less twist.

I do not intend at this time to go into detail as to possible causes as to twist variation but have simply mentioned the above causes so that "N. T." may see that I believe that in discussing the possibility of the size of the traveler affecting the twist we are running into a proposition possibly of twist variation rather than the real cause of twist on a ring frame.

Now I hope that "N. T. (Tenn.)," after reading this article, will continue a discussion on this subject even branching out into what I have termed as twist variation.

BERT (R. I.)

Rules for the Speeder Room.

EDITOR COTTON:

This letter is written with reference to the care of fly frames. I shall first outline the duties of the speeder tenders. These duties should be posted in the speeder room where all can see them, and the section hand should see that they are carried out.

Speeder tenders must clean all the rolls daily and thoroughly every Thursday, with empty bobbins on the spindles. All under and top clearers must be cleaned at every doff, and the roller beam must also be wiped at doffing time. Clean the drums twice weekly during doff. Clean the frame ends twice a day and keep the creels free from fly; front creel to be brushed during doff and the fly should be kept off of the roving while doing the back creels. Spindles should be oiled at the first doff daily. Front steel rolls should be oiled three times weekly. Shell rolls should be cleaned and oiled on each frame every other week. If running different qualities of cotton, each quality should have its chalk-mark, and each speeder tender should be given a chalk-mark, which makes it quite easy to trace bad work; these marks should be applied at a quarter-bobbin. All flyers should be wiped at half and full bobbin. No piecing should be done with wet fingers, and no tail ends allowed when piecing. When cleaning, the frame should be stopped and the safety catch put on. Tenders should see that ends are in flyers and wrapped around the presser finger and all flyers should be left in a straight line at stopping time on week-ends. Doffers should sweep all alleys out every hour and clean back-boards and rail at every doff. Spindles should be cleaned three times a week. The oiler or section-hand should oil the spindle feet once every four weeks and the lifter shaft once a month. All fast moving gears, pulleys and shafts should be oiled daily.

A notice such as the foregoing should be placed in the speeder room, where all can see, and section-hands should enforce these rules.

I will take time to mention change gears; first, the draft gear—I do not believe in changing draft gears on the roving and jack frames the way it is done in some mills, instead of making their work evener by constant changing of draft gears they probably are only making it more uneven. The only condition under which I would allow a draft gear to be changed is when it has sized considerably on the light or heavy side of the standard for two days in succession, and then I would look back to my slubbers and drawing frames and even further back in the processes until I had located the trouble.

Tension gears, to my mind, should be kept uniform, in cases where the roving is of the same diameter. If the tension becomes too tight or too slack it should be regulated by moving the cone belt fork. W. O. R. (Mass.)

The Speed of Grinding Rolls.

EDITOR COTTON:

I noticed sometime ago where someone in the "How Other men Manage" department was asking for the proper speed for grinding rolls.

Although there were several answers to his question, I am submitting another.

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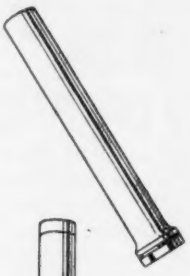
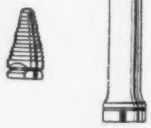

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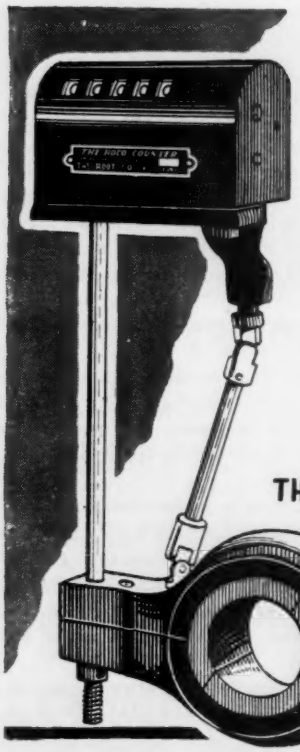

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patent grinding rolls which instead of being traversed by a rope are traversed by a gear on the end of the worm inside of the barrel. The roll traverses from one end of the barrel to the other end in twenty-five seconds, but when the rolls were shipped to the mill it took forty seconds for the roll to make its journey from one end to the other. However, we found this too slow for the proper results and put on a smaller pulley at the other end of the roll. That speeded up the worm. The rolls make 412 revolutions per minute. We find that with a roll speed of 412 revolutions and a traverse speed from one end to the other of twenty-five seconds we get a good sharp point on the wire in about seven hours of grinding with this gear machine. By changing the driving pulley on the driving end of the rolls you can either speed up the roll also speed up the traverse of the roll at the same time or cut the speed of the roll and by so doing cut the speed of the traverse.

Also, our cylinders are clothed with 110 wire and the doffers with a 120 wire and the above speeds give us No. 1 results. B. A. B. (N. C.)

New England Mill Men Meet at Boston.

(*Continued from page* 122.)

off, which becomes waste. A stop motion for the spinning frame was developed, resulting in a uniform length of about eighteen inches to be pulled off by the battery girls. This saved a great deal of the battery girls' time and also cut down the amount of waste.

"A rearrangement of many of the jobs along the lines of specialization is extremely advantageous to the management and to the operatives resulting in increased earnings to the latter and lower machine costs to the former. A revolutionary change in the weave room is an excellent illustration, showing that much can be done along these lines in the textile industry. The weavers were in the habit of doing work other than actual weaving. The average weaver's duties, in addition to running the looms, were to be on the watch for cut-marks, to remove the cloth roll at the cut-mark, to make pickouts and to aid the room-girl in mending smashes, to help the battery girls, and in some cases, to make minor repairs to the looms. The loom-fixer's duties were to repair and adjust looms, and to put in new warps, removing the empty beam and lease, with the necessary trucking to and from the 'spare floor.' In the performance of these duties, he went to the supply room for supplies, helped other fixers with big jobs, and made rounds of the looms of his section every day to estimate the number of new warps needed on the following day. There was a loom cleaner for every fixer, because the looms were cleaned thoroughly before a new warp was put in. A careful analysis of each of these jobs was made and the final result was a rearrangement of the work in the entire weave room. The operatives are instructed what to do and what not to do. The weavers do nothing but weave. They have time to look over the cloth on the looms for weaving defects, and to look over the warp threads for bunches and bad places, which are liable to cause breakage. The former battery girls, who put filling yarn into the loom batteries, are now weavers' helpers since they assist the weavers in any of their duties. The cloth is removed by schedule, each loom being doffed once a week by men who have a special truck

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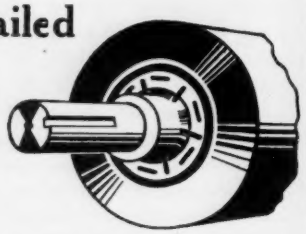

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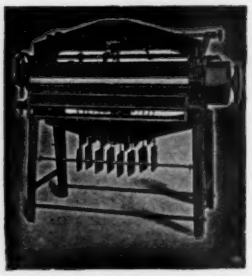

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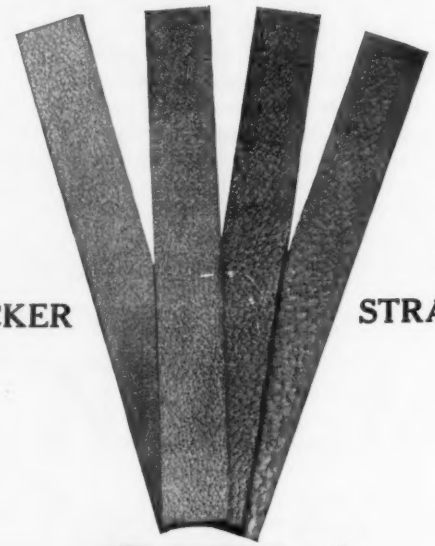

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to use in taking the rolls to the conveyor. The design of the truck was worked out to eliminate lifting the rolls, which contain twice as many yards as formerly, when the looms were doffed by the weavers approximately twice a week. The larger cloth roll means a saving, due to less loom stoppage and less waste of cloth in the cloth room.

"The loom fixer's duties are reduced to answering the call of the weavers to looms needing repairs. All work formerly done by the fixers pertaining to removing leases and empty loom beams and putting in new warps, is done by a crew of men under the direction of a foreman, who has charge of the loom cleaners also. These men are assigned to the looms needing changers and cleaners and are available for work in any part of the weave room. The supplies for the fixers are brought to them, each fixer having his own bag which is filled each day. The weavers and loom fixers are now working on more looms, but their work is not any more difficult under the new arrangement. The earnings of the weavers, fixers, and helpers were increased because of the saving in the number of weave room operatives, and of the increase in production per operative per hour. The production per loom per hour under the new method remained practically the same as under the old method. One of the older weavers who has been with us for many years was reluctant to attempt the work under the new arrangement. After a short time as a weaver's helper she asked for a weaver's job. Although her earnings under the old method were less than the average, in a very short time under the new arrangement, her earnings jumped into the class of the highest. Perhaps it would be well to say here that in making changes in the methods of operation some of our older operatives with many years of service to their credit find it difficult to adjust themselves to the new conditions, or even are unable to do the work successfully. In such cases the management pensions the worker for the long and faithful service rendered.

"Other opportunities exist for successful accomplishment along the same lines as those adopted in the weave room. By arranging the jobs so that the difficult part of the work will have the attention of the skilled worker and the rest of the work will be done under a systematic predetermined method, there will result significant savings as well as increased earnings to the operatives."

Following these two papers a brief discussion on the subject was held under the direction of W. I. Stimpson, agent of the Draper Corporation, as chairman.

The Thursday afternoon session considered the subject "Studying the Market," with John S. Lawrence, of Lawrence & Co., as chairman. "The Study of Cotton Goods Specialties," was the subject of a paper by C. H. Clark, of Textile World, Boston; Daniel E. Walsh, of the Jordan Marsh Co., Boston, discussed, "Studying the Styles," and Lew Hahn, of the National Retail Dry Goods Association, as the final speaker, considered the subject, "The Retailer and the Mills."

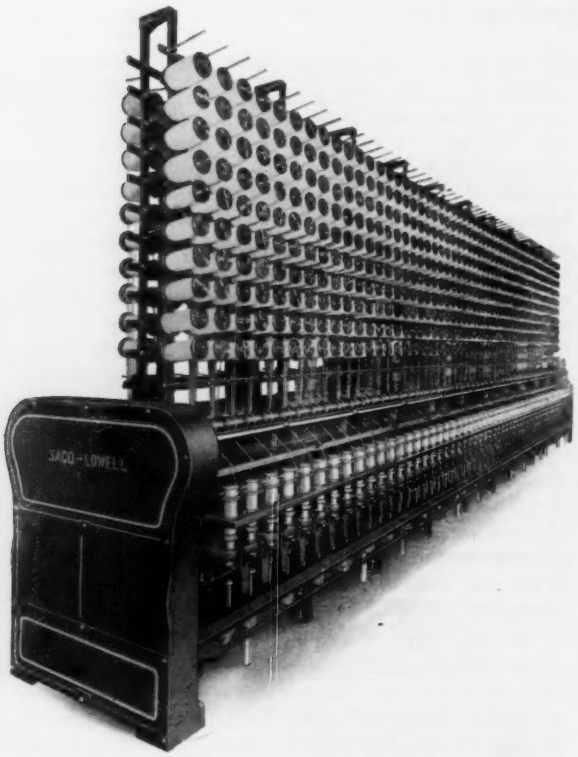
On Thursday evening, the annual banquet was held, with L. F. Loree, president of the Delaware & Hudson Railroad, as the chief speaker. The new president, Mr. Butler, also delivered an interesting address at the banquet.

M. SPEARMAN, formerly at Liberty, S. C., is now overseer of carding at the Alice Manufacturing Co., Easley, S. C.

A New High Speed Heavy Twister.

The Saco-Lowell Shops are now building a high speed heavy twister that, it is claimed, will produce about 50 per cent more than former models, with practically no additional floor space, labor or power. It costs slightly more than the models which they have been building in the past. This twister is at present particularly adapted to tire yarns and duck yarns.

There were many problems facing the builders of this twister in the beginning of their work. The first problem



was to have a spindle that would stand a heavy package usually slightly out of balance, and run smoothly at the high rate of speed. A spindle was evolved which is said to fulfil all hopes of the builders. This new spindle runs smoothly at a high rate of speed with no perceptible vibration. It is self-centering and the most extreme examples of unbalanced bobbins do not interfere with its smooth running, say its makers.

Considerable power is saved by this new type spindle, the builders state, owing to the elimination of vibration and to the fact that there is a constant circulation of oil in the bearings. Hand in hand with the spindle experiments was the necessity of a twister ring upon which they could have a high traveler speed. Many different kinds of rings were evolved, but finally an improvement of the standard vertical ring was adopted. This ring did not require a special traveler. The operative lubricates the traveler on the new type of ring just as he does now on the ordinary vertical ring, by wiping a little grease on the inside. This lubricant is held in grooves and fed in correct quantities to the bottom of the ring, which is in contact with the traveler. There is no complication here in operation.

After developing a spindle and a ring for high speeds, it was necessary to improve the frame itself, to stand this increase in speed. The frame is new, and is called Model U. In the heavier head end there are spiral gears which produce smooth and quiet running, and longer life. The cylinders are heavier and of a larger diameter. To eliminate vibration, the heads of the cylinders are made of aluminum instead of cast iron, and they are carefully balanced. Ball bearings are used for the cylinder bearings. A new type top roll stand is used to help the operative. By merely pushing the roll back, it is lifted from contact with the bottom rolls.

A slow speed starting device, which works automatically, is part of the equipment. This relieves the strain on the yarn by starting the machine slowly.

For wet twisters, all parts likely to be affected by water are treated with a rust proofing process.

A Cause for Fluted Rolls.

EDITOR COTTON:

I note in the October issue of COTTON that "A. B. (Ga.)" has opened the discussion concerning the causes of the top leather roll becoming fluted. "A. B." has written an excellent letter in this connection.

This is a subject which cannot be discussed too thoroughly owing to its detrimental effect to the work as well as the extra expense. However, there is a point which is frequently lost sight of, namely, the underclothing or cushion cloth, as it is sometimes called. Roller men are not always supplied with the same weight per yard of cushion cloth, and when they are not, there is one thing that is sure to result, this is a variation in the diameter of the bosses of the rolls, and at times this variation will become so great as to bring the diameter of the bottom and top, or driver and driven rolls the same. When they become the same diameter, fluted rolls are sure to result due to the flutes of the bottom roll pressing against the same point of the leather roll at each revolution. It is a fact that any variation in the thickness of the cloth will affect the diameter of the rolls the same as would the thickness of the leather.

To make this plain, the diameter of the rollers must always be prime to each other so as not to allow an equal division. Where self-weighting rolls are used this evil will be present as well as in any other system of weighting if the diameters are not looked after.

If any one doubts this statement let him have his rolls or the diameter of his rolls become common to each other and his experience will prove what I have said in regard to fluted rolls.

T. A. A. (S. C.)

J. C. COSBY, recently connected with the Textile Mill Supply Company, Charlotte, N. C., with headquarters in Greensboro, has become superintendent of the Texas Cotton Mill Company, at McKinney, Texas.

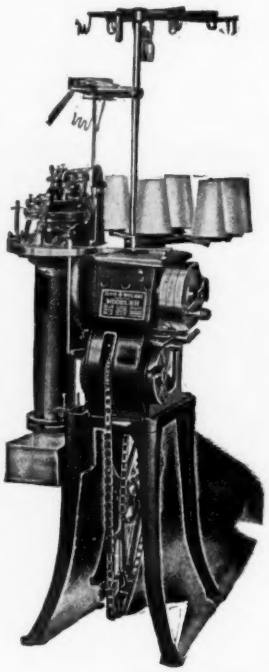
J. T. BRAY has resigned as overseer of carding at the Alice Manufacturing Co., Easley, S. C., to become general overseer of carding at Mills Nos. 1, 2 and 3 at the New England-Southern Mills, Pelzer, S. C.

E. H. STEERE, it is reported, has succeeded J. M. Sams as superintendent of the Asheboro Knitting Mills, Asheboro, N. C.

KNITTING SECTION

NEW MODEL H-H

Producing Ribbed Top Half Hose Complete



Ribbed top made on two sets of needles.

Automatic transfer from ribbed stitch to plain.

Eliminating necessity of skilled help.

Saving of raveling waste which occurs when topped by hand.

Each stocking is dropped from the machine when finished.

Each stocking is automatically started upon the empty needles, producing a French welt without drawing thread or cutting, no ends of any kind to be removed.

Machine is fitted with five yarn fingers.

Provision is made for high spliced heel and double sole.

Provision is made for ring top and ring toe.

Needles without rivets or latches.

Speed of machine about the same as Model K.

Production about twelve stockings per hour on 3¾" 220 needles.

One operator can take care of the same number of machines as Model K.

The machine is built in all gauges.

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Quissett Mill

of NEW BEDFORD,
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Made from High Grade Early Bloom Cotton by careful, experienced operators. All numbers and plys—from 3 to 100

WM. M. BUTLER, Prcs. THOS. F. GLENNON, Agt. EDWARD H. COOK, Treas.

QUISSETT MEANS QUALITY

Desires Hosiery Softening Formulae.

EDITOR COTTON:

I shall appreciate it if some readers of your "Knitting Kinks" department will give us some information regarding a softener for cotton, and cotton and wool, hosiery.

I should be glad to have them mention at least one formula in which olive oil is used, as we have a supply of this on hand. K. G. (WIS.)

A Remedy for Bending Latches.

EDITOR COTTON:

Noting the trouble that "F. G. (Tenn.)" is having with Banner machines bending latches when the guide or latch ring flies up, I take it that he is making transfer children's hose. In this connection I will offer a few suggestions in the hope that they will prove of some assistance to "F. G." in his difficulty.

The essential thing is to have the latch ring or guide set properly. I note that "F. G." has been adjusting this but is still getting bent latches. I would suggest that he look at the mouth piece or throat plate and see that this is perfectly smooth and free from nicks and sharp edges.

In speaking of edges I refer to the ones on the sides and lower part of the mouth piece where the yarn runs on these edges. At these points the edges should be rounded just a little, and this can be done by taking out the mouth piece and using fine emery to round the edges and putting a finishing polish on these edges with crocus cloth. Also, be sure that the mouth piece or throat plate is perfectly flush with the latch ring or guide so that the ends do not exend out beyond the latch ring.

Next be certain that the right and left hand latch openers are perfectly smooth and free from nicks and rough places. These latch openers are the small steel pieces on each side of the latch ring or guide. Also, be certain to see that these latch openers are set in flush with the latch ring. Then look on the inside of the latch ring or guide and see that there are no rough places or nicks; also notice if a ridge is worn in the inside of the latch ring. Should there be such a ridge or roughness inside this ring it would cause the latches to bend. To remedy this difficulty make a scraper out of a half round or three cornered file and carefully scrape out these nicks and rough places or ridges, being careful to smooth all this up with emery cloth afterward.

Then see that the half hose cam is smooth so that when the cylinder raises up it will go up freely and not with a jerk.

We invite our readers to make use of this department for the discussion of any and all problems arising in connection with the knitting mill from the office to the packing and shipping departments. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. All questions will be answered as promptly as possible. The names and addresses of the contributors must be given, but will be held in confidence and a pen name substituted when printed. All accepted contributions other than questions will be paid for after publication. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

If this latch bending trouble is general throughout the room, I feel that the suggestions offered should help out. However, if it is just with one machine or a few machines I would suggest that "F. G." look at the stitch ring and see that it is lined up true with the cylinder. If the stitch ring should be out of line it would have a tendency to throw the sinker to one side or the other and thus the needle would strike the sinker and bend the latch or break off the head or hook of the needle.

As a final precaution, it might be well to look at the cylinder and see that the slots are smooth and do not bear rough spots or nicked places.

I think all readers will appreciate it if "F. G." will advise us whether or not all these things aid him in his troubles, and if so, just which ones seem to overcome the difficulty. OLD KNITTER (PA.)

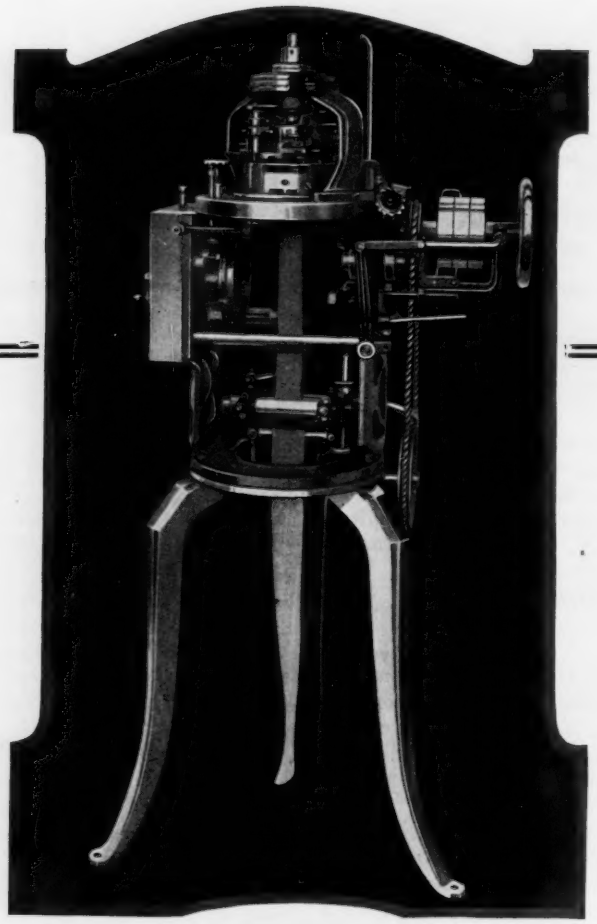
EDITOR COTTON:

Responding to "F. G. (Tenn.)," who is having trouble with latches bending I wish to offer the following suggestions:

When the machines in question stop, this being an automatic movement, it is possible that the cam block does not level the needles, leaving a few of them in a raised position.

When the carrier ring automatically raises, the thread plate will have a tendency to raise the latches on any needles that are left high. This will be especially the case if it is found that the raised needles are in front of the throat plate. To overcome this, I suggest that the automatic brake attached to the inside pulley be adjusted so that the needles that are raised will stop in a position somewhere around the carrier ring but not in front of the throat plate.

Another point to be watched and remedied is the automatically drawing out of the cam block. This should be adjusted so that the needles will level of themselves. This is possible with careful adjustment as the machine is intended to stop with the needles level ready for the transfer operation.



Wildman Ribbing Machine

Wildman Circular Ribbers offer you the marked advantage of a two-speed drive.

The Wildman new style two-speed drive will operate at one speed for difficult stitches and at a speed two-thirds higher for plain knitting. As an illustration, a Wildman Ribber can be run at a speed of 100 revolutions per minute on welts and increased to 166 R.P.M. on plain stitches.

The change in speed is accomplished by the Wildman belt shifter mechanism, a decided improvement over a clutch.

On request we will send the "Wildman Ribber Catalogue" giving detailed illustrations and descriptions of every important part of the machine.

We have just issued a very complete and informative book, "The Science of Knitting"—Price $3.00

TRADE MFG MARK

WILDMAN MFG. CO.

NORRISTOWN, PA.

I hope that "F. G." will advise us in a later letter just what he found to be the trouble and what he did to overcome it. E. R. (TENN.)

Humidifying Knitting Rooms.

EDITOR COTTON:

In the October number of COTTON your correspondent, "C. S. (Mass.)" asked some questions concerning humidifying knitting rooms and the results to be obtained therefrom. In reply to that query I would say that we have a humidifying system in our knitting rooms and believe it to be a good thing. We have tested it out and find it improves our running conditions considerably.

The humidifying system we have has automatic regulators which keep the humidity conditions of the room constant. There should be no trouble whatever in regard to parts of the machines rusting, as with automatic regulators there would at no time be more moisture in the air than on an ordinary damp day under natural conditions.

We have experienced no trouble whatever along this line, although we have both spring needle and latch needle machines. C. I. (MASS.)

A Compensating Tension for Plaited Work.

EDITOR COTTON:

Everyone nowadays seems interested in plaited goods, and we all know the problems encountered in making it. I noticed in "Knitting Kinks" a question from a man who wanted a tension device for plaited work, and also in a letter from "M. P. R. (Tenn.)" I noticed a question about keeping ladies' hosiery on size, without too much variation in length.

For years it has been tried to get a tension which will deliver the main yarn to the needles with an even tension or drag under all conditions. The big trouble with a lot of the tensions are that they are all fixed tensions, which means they will get a long stocking from a loosely wound cone of yarn, and a short stocking from a tightly wound cone, the difference sometimes being from one to four inches, which is what "M. P. R." is kicking about. With a fixed tension also, when the outside of the cone is dry and the inside wet, the result will be a light and heavy, or a jerky, tension.

The whole secret in plaiting is to keep an even drag or tension on the main yarn, or silk. We all know that yarns run light and heavy, and if the light spots slide through more freely than the heavy spots, the result is an imperfectly plaited piece of work.

I am sending with this letter photographs of some patented compensating yarn tensions, shown at Fig. 1 and Fig. 2, which I have found very satisfactory. It is not a fixed tension, and it will change the drag on silk according to the delivery from the cone. I have found that if the tension is set for dry or free delivery from the cone, and a wet spot is struck, or if the day is damp, the tension will automatically reduce the drag on the silk or main yarn. In running yarn that varies, this tension will tighten up on the light spots and release on the heavy spots to produce an even drag or tension at all times.

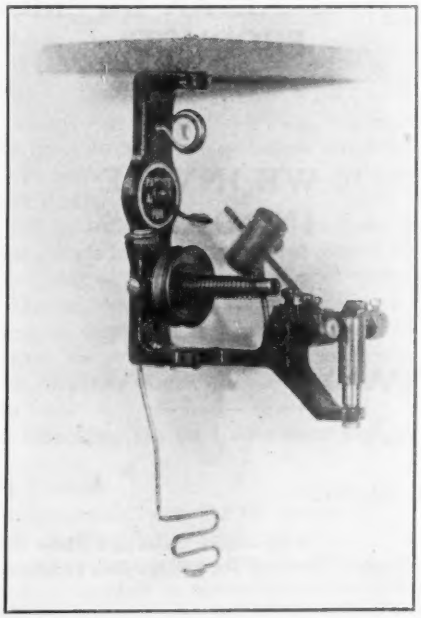


FIG. 1. PIGEON COMPENSATING YARN TENSION

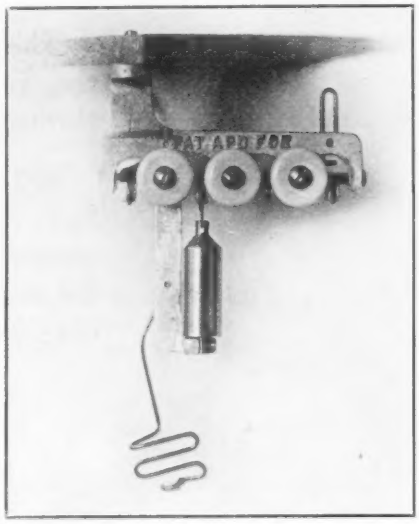


FIG. 2. ANOTHER STYLE OF PIGEON COMPENSATING YARN TENSION.

The device is the invention of the late Albert M. Pigeon, who also was the inventor, I understand, of the first circular hosiery knitting machine using spring beard needles, known as the Pigeon knitter and now manufactured by the Wildman Mfg. Company of Norristown, Pa., as the Wildman knitter. A. T. (PA.)

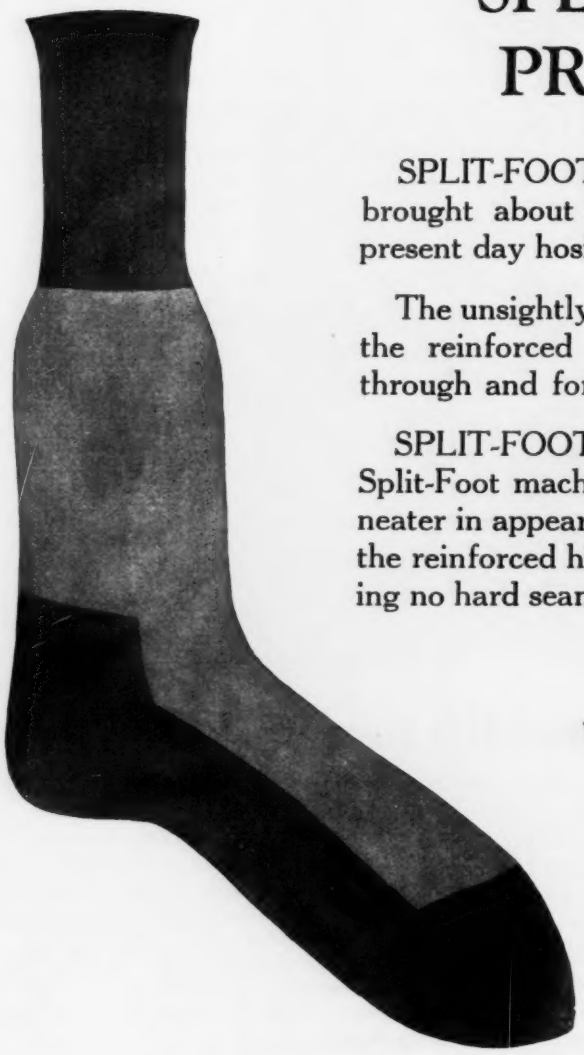
EDITOR COTTON:

I noticed in a recent issue of COTTON that a reader of "Knitting Kinks" wants some advice on plaiting artificial silk on cotton. First, it is necessary to have a plaiting finger or a yarn finger with two holes. The plaiting finger should be mentioned to the machine company when ordering.

Second, it is necessary to have the artificial silk bobbin or cone on a separate yarn stand built out away from the other yarns, directly under one of the bobbin stand arm

The "BANNER"

SPLIT-FOOT PRODUCT



SPLIT-FOOT HOSIERY, the new creation, brought about by the main disadvantage in present day hosiery, namely:

The unsightly inside fringe of splicing ends in the reinforced portion which tends to slip through and form whiskers on the outside.

SPLIT-FOOT hosiery made on "BANNER" Split-Foot machines is smoother on the inside, neater in appearance and has added strength at the reinforced high splice and double sole, having no hard seams.

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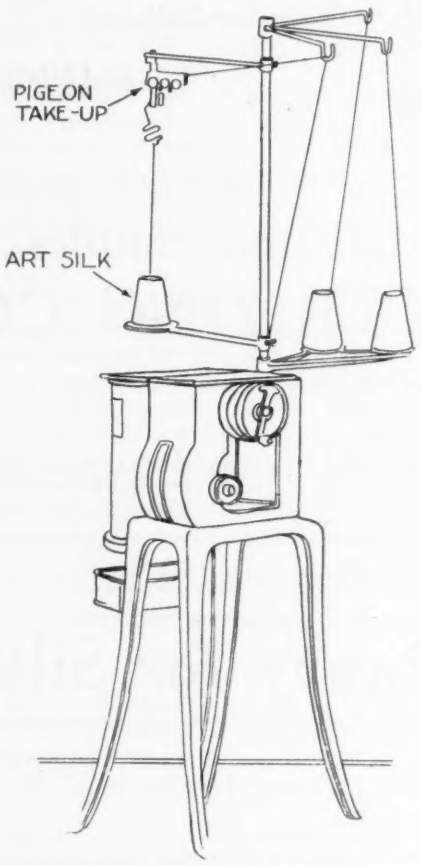
leads. Get some cotton batting and put it under the bobbin or cone to catch any yarn dropping when the artificial silk is not in operation. The batting keeps the silk from getting tangled under the bottom of the cone or bobbin.

A "Pigeon" yarn take-up should be secured.

The stand to hold the artificial silk will have to be made and attached so as to hold the bobbin. The tension will have to be on the artificial silk strand, which should be sprayed with olive oil in the skein before winding.

The artificial silk should be placed just far enough be-



low the guide to make a nice balloon effect as the yarn leaves the bobbin, as any undue pull or strain on the artificial silk is injurious.

It will be found that on 220 needle work, 150 denier artificial silk plaited on 50s mercerized combed peeler yarn, with two ends of 50s mercerized combed peeler heel and toe, makes an ideal hose of about the right weight.

I suggest these directions to be followed. If the correspondent has any further questions, I hope he will ask them in "Knitting Kinks." BOB (CANADA)

Checking Up on Underwear Defects.

EDITOR COTTON:

I was interested in reading the several replies you published in the November issue to the question as to methods of checking up on defects in underwear fabric.

While at our plant we have no particular method for doing this, I will write you about it, and I hope those with more complete and extensive systems will describe them so that we may know of them through "Knitting Kinks."

As I say, we use no especial system of checking up on needle lines and bad work on our knitting machines except on the cutting table. We mark on the end of our rolls, the size, and the knitter's number. If our cloth should run too bad, we check him up. Our goods are inspected by inspectors whose business it is to throw out all garments with holes in them.

We classify as a defect in our cloth a hole or a rundown, and we use a system on the check of finding the operator who makes the bad work.

S. D. C. (NEW YORK.)

Saves Sixteen Dollars a Day.

EDITOR COTTON:

Sometimes we fellows in the knitting mill unconsciously stumble across things that work wonders in saving money for us. I mean that we occasionally "strain at a gnat and swallow a camel," and in looking for the "big" things, we let little things go on right under our nose that eat into the profits. We should ever be on the lookout for everything that might save money—and I believe when we find things like that, the right thing to do is to pass them along to the other man, and that he should return the favor by letting us know of the things he finds out.

This was what was in my mind when I started to tell you about one of these things that we discovered the other day. It's very simple, and yet I don't believe it has occurred to many mills to try it, so here it is.

The cost man of our company came into the mill the other day. He must have been figuring out how much money the mill was losing, because he reminded me of a dog hunting birds. I was with him, and when we got to the seamers, he "pointed" like a bird dog, so to speak, and stopped and looked at these machines awhile. We are making a ladies' silk stocking that is seamed on the Merrow machine, and as everyone knows two threads are used for this.

"Jim," said the cost man, "which one of those threads goes on the outside of the stocking? Only one of them can show; which one is it?"

That had never occurred to me, and I said, "I don't know, sir," but I'll run a colored yarn through the hook, and find out."

I did this, and the colored thread in the hook didn't show at all on the outside of the stocking.

"Just as I thought," said the cost man. "The thread in the needle is the only one that shows through. Now tell me, Jim, why should we be using silk yarn in both the needle and the hook, when only the needle yarn shows through? Why can't we use a mercerized yarn for the hook, instead of the silk, and save the difference in the cost of the yarn?"

Well, I saw his point, and now, on four seamers, we are using a silk yarn in the needle, and a mercerized yarn in the hook. With mercerized yarn selling at about $1.00 a pound, and silk yarn costing about $5.00 a pound, and as we use about a pound of yarn a day on each machine, we are getting quite a saving, with absolutely no trouble at all.

I pass this along to any of your readers who may not have thought of it, for whatever it may be worth to them.

P. J. (GA.)

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ARTIFICIAL SILK,
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HOSIERY,

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BENJAMIN EASTWOOD COMPANY

Main Office and Works -- PATERSON, N. J., U. S. A.

Saving Six Cents a Dozen in Waste.

EDITOR COTTON:

"And so, by doing that, we save six cents a dozen on the cost of our stockings," said the superintendent after telling me of a "kink" he had originated.

Well, I thought, quite a neat saving! Most any mill would be glad to add that to the profit they are now making, if any, on their goods. So I thought I would write and tell you about it so your readers might have the benefit of it.

This man makes a high-class infants' hose, running the artificial silk in the heel and toe. It pained him to see this perfectly good $2.50-a-pound stuff being made into looper margins and cut off and then sold as waste for 12 cents a pound, so he began figuring.

What he did was to add a cone of mercerized yarn in his yarn stand, add a cam that would hold this out until the looper margin was ready to be made. Then the machine started using this mercerized, holding the silk out, and the looper margin is made out of mercerized yarn instead of the silk.

"What I did," he explained, "was after making the heel, to make four courses of the silk, and then a yarn change to the mercerized for the looper margin. I weighed up our looper margin waste, and found I had been getting 250 grains of silk to the dozen, and then I found I got 230 grains of cotton yarn to the dozen after making the change. The artificial silk cost us $2.50 a pound, and we get the mercerized for 75 cents, so that it figures out to a saving of six cents a dozen for us. And on top of that we get as much for the mercerized waste as we did for the silk waste." BOB (GA.)

Watch Out for Waste.

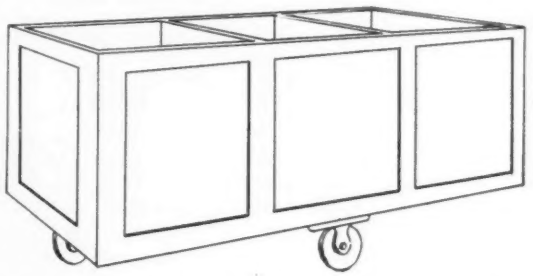
EDITOR COTTON:

When knitting mill waste goes up, and the reason is asked, we often hear the answer, "Bad yarn." Yes, we are going to have bad yarn at times, but suppose that for a moment we disregarded bad yarn and see what else might be causing it.

In making hosiery we have several places for waste to be made, the first place being at the ribbers. The most important thing here is to have a good rib runner, who will constantly be on guard for broken needles. Too many think that just because the ribber is running no damage is being done. Of course the fixer must keep the cams polished. When changing from one weight to another the take-up rollers should be looked after. If the rollers are not taking care of the ribs as they are knit it will cause the machine to load up. On misses' and children's ribs practically all are cut apart with scissors. On half-hose ribs some use an automatic knife, some a foot knife; on the automatic knife a person has to watch the adjusting springs closely or he will make waste.

Next the knitter gets the ribs. Sometimes a knitter will get a bundle of ribs that she doesn't like—it sounds strange, but it's a fact—and she will bring them back to the waste-box. The place for keeping the ribs should be so that she can't do this and get away with it. The ribs that are brought back should be examined by some specified person and if any can be used, they should be given back to the knitter and the man in charge informed of it.

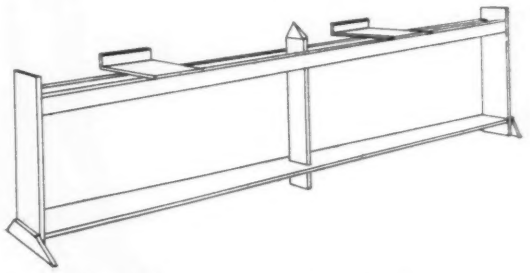
At the knitting machines, the fixers should bend every effort to keep waste down, for it certainly is expensive. If the machines are cutting out or pressing off, the first thing is to see that the yarn locks or tensions are clear of lint. Next, see that the take-up snap has no obstruction. If no fault can be found then take the sinker off and remove each sinker and examine it carefully. If a tight or bent sinker is found it should be discarded. Lint constantly packs around sinkers and causes them to work hard; they must work freely to get results. After examining the sinkers, look for nicks on the sinker cam. If only a small nick appears, it should be polished out. After these things have been done, if the machine continues to



cut out, the cam ring should be examined—it's a safe bet there are some rough cams. Of course the fixer will look for a bent bar or a bad butt on the needles.

Another thing to prevent waste is not to let the knitters leave any yarn on the cones. It pays to watch this.

Next let's consider how the machines are cleaned off? Is greasy waste used? Greasy waste can be eliminated by the following practice: Select 100 pounds of waste. Divide it into two trucks, one for each end of the room. Let everyone concerned know they are to use waste from these

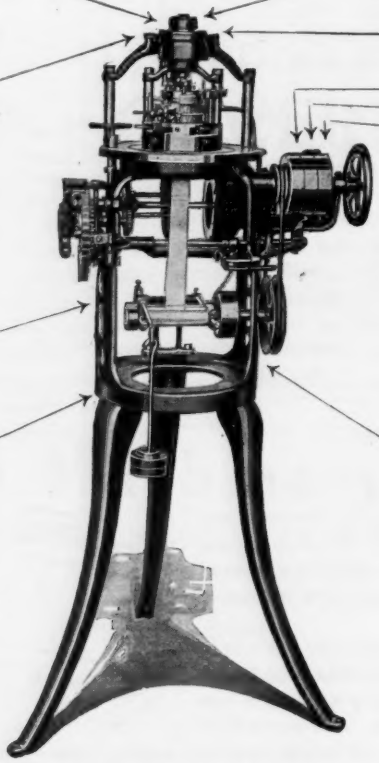


trucks. After cleaning off have a box to deposit greasy waste in and when there is enough, send it to the dyehouse to be washed. Of course it will take several days for this to dry out, but by sending it to the dyehouse in plenty of time it can dry out before the balance in the trucks gives out. It may prove a surprise to find how long 100 pounds of waste will last when used in this way.

Waste boxes on the floor at the machines are, in my opinion, bad. The girls' aprons should have pockets in them so that when the knitter ravels a top she can put the raveling in a pocket instead of throwing the ravels *at* a box on the floor. A box should be located close to where the ribs are given out so it will be convenient for the knitter to empty her pockets. Or better, have a truck made according to the sketch shown herewith; this of course would have to conform to local conditions—small enough to pass through aisles, etc. I use the aprons and the truck, and

The

UNIVERSAL
Hosiery Ribber


Extreme ease in changing heads, any size or style from 2 3-4 to 4 3-4. Simply remove screws at top and bottom
Complete Dogless WITH NO VIBRATING PARTS
Do Not Need New Dogless when changing heads
Change head without removing dogless spider
High Speed Pulley
Low Speed Pulley
Loose Pulley
Free View of fabric from front of Machine.
One Piece frame assures rigidity.
Sensitive takeup Running in oil eliminating all wear of old Style worm and wheel giving perfect tension of fabric at all times.

Simple in Construction and Operation. Rigid in Design. Smoother Fabric.

Fidelity Machine Company

Frankford, Philadelphia, Pa.

Foreign Agents

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Los Fabricantes Unidos
Buenos Aires, Argentine Republic

GREAT BRITAIN
Moses Mellor & Sons, Ltd.
Nottingham, England

JAPAN
Taketaro Yoshidzumi
Osaka, Japan

AUSTRALIA
Vance & McKee
Sydney, Australia

have the waste taken up every 1½ hours. By doing this I get knitters' waste made by machines, ravelings and cones, all on the same trip.

The other sketch herewith shows the rack alongside of the knitting machines.

But with all the conveniences one must have the co-operation of the whole force—get in behind the waste, talk waste, and get the fixers lined up on this, and never let up, but keep everlastingly at it.

Waste from other sources is not to be overlooked. Oil costs money, and thousands of gallons are poured on the floors of our mills every month. A man with the job of oiler ought to be made to feel that he has a very important place. Oilers should carry with them a sharp pick to clear out oil holes, and they should always be given plenty of time to do their work. A good way to oil sinkers is to drill two holes in the cap and oil when the machine is on the heel. By doing this less oil will be lost. Oil is the life of machinery, and failure to oil properly means its destruction. Unusual care should be exercised when oiling hangers if there is a belt close by. Oil makes a belt slip, and slipping belts with a load will soon ruin them so that not only is the oil wasted but the belt becomes scrap. In oiling knitting machines oil should not be allowed to get on belts, because when the machine changes to a heel, if the belt is slipping it will make the machines hang up and run out of time. Then the knitter has to go for the fixer and she loses time and money and so does the company.

Watch the lights, and if not absolutely necessary, cut them off. Sectional switches are preferable. Some may say they have to pay so much anyhow, but they are burning out the globes. If the light is dim, lay it aside for a while and then it can be used again. If lights are missing from the plant have guards put on them and give one man a key. Watch the wash-places; some fellow might leave the water turned on and waste a lot of water. All of these things can be prevented to a degree, and they save money. Brooms should be hung up instead of being stood up in the corner; they will last longer.

W. H. H. (GA.)

The Underwear Knitting Department.

EDITOR COTTON:

We men running underwear mills do not give enough attention to the knitting department and the machines in it. I base that statement upon my own experience in finding faulty conditions in this department, and from my observation in other mills. Too many of us give much thought and consideration to the proper handling of the goods after they leave the knitting machine, which in itself is all well and good, but it looks like lots of us forget that a mill's profit is either made or lost on the knitting machine, and depends entirely on the practices we have there. A machine not running is a dead loss and isn't "paying its board," and sometimes we find machines that are running but are losing the mill even more money than the idle ones by producing defective work.

To demonstrate what careful attention will do for a mill, I shall describe, in this letter, the transformation in our own knitting room, by installing what I call a "modern system" as compared with the old established practice still in use at so many plants. I hope my remarks will start some other superintendents to investigating, and if they find out how they can better their conditions, I trust they too will tell us about it through "Knitting Kinks."

Our mill contains about 71 Wildman circular rib latch needle underwear machines on men's work. (We did make ladies', too, but the fashion of the fairer sex to wear silk or nothing at all about stopped up our market for that.) When I took charge of the mill some seven years ago, the place was having the devil of a time with bad work. The machines were being run 22 hours a day to produce 30,000 pounds a week in order to keep up with the succeeding departments. Now, by the way, with the "modern system" in use, we are getting off approximately 24,000 pounds a week running only ten hours a day—but that's getting ahead of the story.

The owners were convinced—and told me—that the trouble causing the bad work was in the yarn, but as I happened to have charge also of the mill making the yarn, I knew it wasn't that, and told them to give me a trial. It happened that we had just received a brand new machine, and, using the same yarn, it was turning off perfect work, so I convinced the boss that the difficulty lay in the mechanical operation of the machines.

The usual practice in an underwear mill of this sort is to have a fixer for every 20 machines or so. The operator is on piece work, and he is interested only in turning out some sort of work that will stack up production for him, regardless—and what crimes are committed under the veil of that! Furthermore, each knitter is left to do his own oiling, and he isn't going to let the machine stop any longer than the has to in order to perform this duty; and take it from me, the average piece-worker isn't any too careful about oiling his machine. And when a needle breaks, he calls the fixer and he pulls out a part of it, as much as he can get, and leaves the rest in there, leaves it in there to travel around the machine and break several score of other needles. All of this I call *slighting the machine*, and I found the results of it in our work of reconstructing this department. I found, often, as many as 180 needles in one machine broken by the part of a needle left in the machine through carelessness. I found revolving top heads that jumped up at least an eighth of an inch due to improper oiling or lack of oiling.

Having the conditions to face, the first thing I did was to get me a good, progressive foreman, and he took down every machine in the room, put in new needles, wherever necessary, evened up all the needle slots, and got the machine properly oiled. Then we did away with the fixers altogether—yes, really—and employed, for $20.00 a week, a man we call "Oiler." The knitters do not oil their machines at all. That is this man's job. He knows how it should be done, and he does it correctly. It takes him about four hours a day to perform this part of his work, and the rest of the time he is general utility man about the room, sorting out needles, etc.

Then, when a needle breaks and we have a "jam," the knitter calls this man, and he takes out *every bit of the broken needle*, and lays the pieces together to match up and sees that it is all there. This eliminates the possibility of smashing up a hundred needles or so by having a piece left in there. Furthermore, it is our practice, when a "jam" occurs, to take down the machine and go over every bit of it. You don't know what's happened, and the best way

Superior

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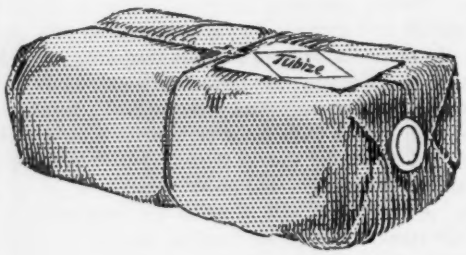

Each package of Tubize is carefully wrapped in moisture-proof waxed paper.

Yards Per Pound Tubize Artificial Silk

Deniers	Yards
60	74,404
70	63,779
80	55,807
90	49,606
100	44,645
120	37,204
130	34,342
140	31,890
150	29,763
160	27,903
170	26,262
180	24,803

Before you place your next order for artificial silk send for a sample of Tubize. Try it. See for yourself the wonderful results it gives.

There's a reason for it. Tubize is marvelously strong. Tubize is delightfully soft to the touch and it has a deep velvety finish which greatly enhances the appearance of products made from it. Tubize absorbs perspiration, washes without deteriorating and does not rot from moisture nor yellow with age.

Ask any retailer who has handled Tubize-made products — listen to what he will tell you about Tubize. Listen to his almost unbelievable testimonial.

TUBIZE ARTIFICIAL SILK CO. *of* AMERICA

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BRINTON BODY MACHINES

Plain or Automatic

Built in all sizes up to 24 inches. In all cuts up to 14 needles per inch.

You owe it to yourself to investigate this machine.

We also build all styles of Hosiery Ribbers and Knitters and various other circular machines for all kinds of knitted articles.

Samples, prices and particulars upon request.

H. BRINTON COMPANY

Philadelphia Pennsylvania

is to take down the machine and find out what needs working on. I have a work-bench for this man and he has a wedge of the proper thickness with which he goes over every slot. This beats the old haphazard practice of a fixer running around with a hammer and wedge all day long. When we fix a machine it is fixed. We don't have such a thing as a "jam fixer" and I tell all new knitters that. This oiler does this, and has ample time to do it, too.

Another thing: when a "press-off" or a "quarter-off" occurs, much time and goods can be saved by a little more attention to the way it is put back, and many needles saved.

Badly worn cams cause as much breakage of needles as any other one thing, I reckon. And oh, how careless most fixers are with these, even after the machine is taken down they put it back with some cams in a condition to break more needles right away. The cams should be taken off and ground on an emery wheel to be kept in perfect condition. I find an emery wheel one of the handiest things about the room. I have a small wheel whose surface is the same curve as the cam, and I can grind the cams off right smooth and perfect—and this is always done before the machine goes back together!

Then, are we watching the needle slots closely enough? It doesn't take much more time, after a machine is taken down, to run a wedge through all the slots to straighten them out.

It's these things, which are too often neglected, that lose a mill's profit—and goodness knows the profit is small enough anyhow without wasting it away through invisible leaks. As a result of our system, by cutting out the extra help, increasing the production as indicated, we made effective a 46 per cent reduction in the total room cost. That means something, doesn't it?

I hope these random remarks will make some other superintendents investigate things more closely. I should surely like to see some further discussion on this by some of them. C. C. (Tenn.)

Knitting Machine Fixers.

EDITOR COTTON:

I have been reading with much interest the letters of "J. L. H. (N. C.)" and "N. C. S. (Tenn.)," on fixing knitting machines. It is evident that both of these gentlemen have been fixers, and have been through the mill. And I agree with "N. C. S." that the boy who starts in the knitting room has the best opportunity of anyone to learn to be a fixer And again, in traveling around among the different knitting mills I have found very good fixers who were not knitters.

I, myself, learned to be a fixer right in the knitting room, but did very little knitting. I had to do all the minor jobs in the knitting room before I reached the position of fixer—such as carrying yarn, fixing belts, oiling and cleaning machines, etc. After being made a fixer, and after I had a set of machines, it was up to me to fix them and keep them going, making good work, with as few menders, seconds and waste as possible. In fact, it had to be done, as each knitter had to make out a report each day showing just what her set of machines had done for the day, such things as menders in heel and toe, cutting out in the leg, knots in yarn, empty bobbins, machines stuck, bad

A Package that Helps Speed Up the Nation's Knitting

America's foremost knitters of hosiery and underwear—knitters whose trade-marked goods are world known—have found that that little package of Franklin Latch Needles helps speed up production of higher quality goods. Their knitters no longer have snappy nerves caused by frequent snapping of needles but find that work slips along with fewer interruptions—they no longer have so many "seconds" for the Franklin velvet-smooth finish never frays the yarn.

Smooth-running equipment and more contented knitters make for quality and quantity production.

It pays to keep this little package of Franklin Needles on hand and have every machine filled with Franlkins.

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LATCH NEEDLES

FRANKLIN NEEDLE COMPANY, FRANKLIN, NEW HAMPSHIRE

Established 1874

STANDARD HOSIERY MACHINES
NYE & TREDICK UNDERWEAR MACHINES
SPECIAL KNITTING MACHINES

All of our machines which are the result of a half-century's experience combine the following advantages:

Simplicity
Durability
Flexibility
Economic Operation
Consistent Performance
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The outstanding feature in all instances is

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Write for details of recent improvements on STANDARD and NYE and TREDICK machines.

We will gladly design special machines to your specifications. Write for information concerning this special service.

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needles, butts broken, bent latches, machines standing, length of time machine stood, and all the other troubles that would cause bad or defective work or loss of production; in fact everything it was possible for a machine to do in the course of a day's running was marked on this knitter's report, and it had to correspond with the work she handed in, and by this report the foreman knew just what the fixer was doing; for instance, if the machine was stopped one hour, the foreman went to the fixer to find out why it was stopped that long. The fixer would explain, and it was cleared up.

After getting around to different mills, I happened to be in a certain mill once, and the foreman remarked to me that he did not think a certain other mill turned out any fixers. I asked him what he termed a fixer, and his answer was, "One who can grind cams, put teeth in gears, fix broken castings, and make different parts." I told him that my term for a man who did that was "machinist," and to me a fixer was a man who could keep the machine going making good work, and keep the menders, seconds, and waste down to a small percentage.

In another instance I was in a mill and the superintendent sent me into the knitting room to find out why one fixer always got a better production from his set than the other fixers got, so I set out to find his secret. I asked him, and he answered, "Oh, you know." I said, "Perhaps I do know, but won't you tell me." He did, and it was a very simple but effective and result-producing trick. He oiled his machines the first thing every morning with two-thirds machine oil and one-third coal oil. This little thing of mixing coal oil with the machine oil kept the machines limbered up, and cut down the menders, etc.

In another mill I had the same experience as mentioned by "N. C. S." where a learner suggested an adjustment that overcame the trouble the experienced fixer was having.

In closing I will say I have found that the mills where fixers are taking care of 60 to 75 machines are getting much better results than those where the fixers are taking care of 85 to 100 machines.

These are just some of my experiences. If anyone wishes to comment or ask any questions, I should be glad to see them in "Knitting Kinks." OLD KNITTER (PA.)

Shambow Shuttle Company, with factories at Greenville, S. C., and Woonsocket, R. I., showed at the Greenville exposition a line of modern shuttles recently designed for artificial silk of various counts and compositions, and of such fabrics as chambrays, shade-cloths, osnaburgs, tire-duck and fine-fancies, etc. An exhibit of the sixty odd operations in sequence, necessary on the wooden part of a shuttle, was made to convey the thoroughness and accuracy put into the shuttles. A number of mills over the country furnished a wide variety of samples of fabrics woven with Shambow shuttles, which were displayed in the booth.

Arrangements have been made with The Root Co., Bristol, Conn., manufacturers of automatic counters and metal specialties, to take over the manufacture of the brass and other boxes for Zinn compacts, of the Simon Zinn, Inc., of New York City. This addition enlarges the scope covered by this company, which has acquired a splendid reputation in the brass and metal specialties field.

ABERFOYLE MANUFACTURING COMPANY

MERCERIZED YARNS

MAIN OFFICE
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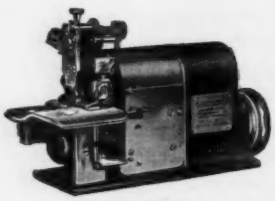
MERROWING



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The Merrow High Speed Overseaming Overedging and Shell Stitch Machines.

MERROWISE FOR EFFICIENCY

MAXIMUM PRODUCTION
IT MEANS: MINIMUM EXPENSE
UNEXCELLED QUALITY OF WORK

THE MERROW MACHINE COMPANY
ESTABLISHED 1838
16 LAUREL ST., HARTFORD, CONN., U. S. A.

Among the Knitting Mills

Oconee Manufacturing Company, Walhalla, S. C., has been organized by W. K. Stringer, N. F. Stringer, and W. Frank McGee, of Anderson. The concern will take over the mills formerly operated by the Hetrick Hosiery Mills, at Walhalla.

Voorhees Hosiery Company, Houston, Texas, has been incorporated by B. A. Denny, S. Smith, and others.

The silk mill of the Durham Hosiery Mills, at Durham, N. C., is being gradually increased, and it is planned ultimately to equip the huge four-story building for the production of full-fashioned silk hosiery. New machines are being placed in the plant every month, and it is understood that this policy will be continued until the entire space is utilized.

The Novelty Knitting Co., Cohoes, N. Y., have awarded a contract to the Parks-Cramer Co., of Fitchburg, Massachusetts, for an extension to their present humidifier system. Work on the additional installation will begin at once.

Leroy A. Beers, secretary of John K. Stewart & Sons, Amsterdam (N. Y.) Knit underwear Manufacturing Company, has arrived in Pine Bluff, Ark., to take charge of final preparations for starting operations at the Arkansas Textile Co., the new underwear plant which the Amsterdam interests helped establish there.

Mr. Beers, who is general manager of the local factory, announces the mill will be ready to begin operations about Feb. 1.

Forty carloads of machinery will arrive within the next two months. When this is installed the plant will start up with about 400 employees.

Talladega Knitting Mills, at Talladega, Ala., have closed their plant and gone out of business, it is reported. This decision of the directors of the organization was reached several weeks ago, brought about by inactivity during the summer and continued dull business this fall causing the elimination of operations recently. This plant has approximately 10,000 spindles, all of which had not been in operation at one time during the past two years. All of the mill equipment will be torn down and removed to Ashland City, Ala., where a new company has been formed and will be known as the Ashland City Knitting Mills. It is understood that additional equipment has been bought, to increase the capacity of the spindleage and replace old machinery. An entirely new management will have control of the new organization, the personnel of which has not yet been announced.

The Penn Knitting Mills, Brooklyn, N. Y., recently formed by H. N. Goldowitz and B. Roland, plans for the operation of a local works for the manufacture of a line of knit goods. The company will operate with capital of $10,000.

The Alcone Knitting Mills, 447 Washington Street, San Francisco, Cal., will soon begin work on a five-story and basement plant on Mission Street, for which plans were prepared by S. Heiman, 57 Post Street, architect. The structure is estimated to cost about $175,000 including machinery installations.

The Grasand Knitting Mills, Brooklyn, N. Y., has been incorporated with a capital of $50,000, to operate a local knitting mill. The company is headed by D. Sandler and F. Granger; it is represented by M. A. Granger, 18 Johnson Avenue, Brooklyn.

The Franco Fabrics Corporation, New York, recently formed by R. Sandlow and H. Kruse, plan for the establishment of a local works for the manufacture of a line of cotton knit goods. The company was represented by Gilbert & Gilbert, 43 Exchange Place, New York.

The Wakefield Knitting Mills, Philadelphia, Pa., manufacturer of knit underwear products, is installing equipment in the first floor of a factory building located at 1924-28 Hunting Park Avenue, recently leased, and plans for early operations.

The Rector Knitting Mills, New York, N. Y., recently organized, plan for the operation of a local plant for the manufacture of a line of knit goods. The company is headed by J. L. and M. Mann and A. Sagbini; it is represented by F. J. Bischoff, 53 Washington Street, New York.

The Trabulsi Knit Fabric Co., New York, has leased the eighth and ninth floors of a building at Mercer and Bleecker Streets, for the establishment of a mill for the manufacture of knit outer garments. Equipment will be installed at once and operations commenced at an early date.

The Chicago Knitting Mills, Chicago, Ill., have filed notice of change of name to the Lorenz Knitting Mills.

The Richmond Hosiery Mills, Rossville, Georgia, manufacturers of Arrowhead hosiery, is to erect a two-story brick addition to the Rossville plant, to be 50x100 feet.

CONTENTED OPERATIVES

The Federal, State and Municipal Governments are urging Tree Planting, not only to beautify, and reforest, but to increase the food supply. Get in line with this progressive movement—Plant PEACH Trees in the yards of your mill village homes. They bring beauty and good cheer, which mean contented, healthy, efficient operatives.

SELECTION OF VARIETIES

We can supply you with a wide selection of varieties of healthy, well rooted trees that bear fruit from early Summer until late Fall. We make special quotations on lots of 500, 1000 or more.

HOWARD-HICKORY NURSERY

HICKORY, NORTH CAROLINA

The Yarn Market

There was undoubtedly a healthier tone in the condition of the Philadelphia yarn market during the past month as it is reported here. Business transacted seemed to be of a more satisfactory nature, affecting more of the divisions in the list than have been in prominence for some time. Buyers seemed to be more in earnest as to the taking of materials, and all factors appeared in better feeling. The spinning end of the market manifested a firm stand, and over the period as a whole quotations generally found a higher level which endures at the present writing, with prospects pointing to a continuance of these rates, if not still higher values.

During the month an interesting feature revealed in the market was the depleted condition of stocks in the hands of the dealers, which seemed to refer more to finer numbers than to the coarser counts. Impelled by varying influences to enter the market, and demanding "spot" goods for immediate delivery, some buyers found the dealers unable to meet their demands promptly. The dealers, going back to the spinners for more yarn on the price basis then in force, either found the mills disinterested at the figure, or were allowed a much smaller quantity at the prevailing price, with an increased quotation on the remainder of a consignment. The firm stand of the spinner did not permit the lower price to apply any further than seemed necessary, it was pointed out, with the result that in instances some dealers applied to competitors in the market for sudden delivery upon some counts.

While the condition of small stocks in Philadelphia seemed to be more or less general, it was not believed there were many examples of dealers being "short." Just how it would be remedied was a matter of conjecture, in consideration of the attitude of the spinners and the disinclination of the Philadelphia factors to load themselves up in prospect of an undetermined future for the market.

Although business transacted for several months has apparently been mediocre in volume, and the market has felt that sooner or later compensation would put in its work in the form of an increased demand for the covering of orders on the part of consumers, another revelation during the month, which seemingly was paradoxical, was that yarn users appeared to be better stocked with yarns than has appeared to be the case from the day-to-day and week-to-week reports of business done. Although it is impossible just to determine the exact amount of yarn in the hands of users, and while no general condition can apply to them all, still it was felt that as a rule the consumers had more nearly provided for their requirements for the remainder of the year than has been previously calculated.

Some business for the first quarter of 1925 developed in some quarters on the more standard numbers. Business in floor covering yarns was particularly active during the first part of November.

The established custom for trading in the yarn market has been for the consuming end to come in three or four times a year or so, and make general commitments for their requirements. The practices of the past several weeks seem to indicate an inclination of buyers to digress from this; to come to market more often, for smaller stocks of yarns. By some this trend was pointed out to be a stabilizing influence on the market and on prices, it being stated that the market was relieved from intermittent spurts of unusual activity alternating with extended periods of dullness, thus bringing fluctuations. At the same time, however, there were other factors who expressed a complete willingness for the return to the methods of former years.

This new policy on the part of yarn users, it was explained, undoubtedly reflected the new "hand-to-mouth" practice of the retailer, who apparently has found it more satisfactory, and just as convenient, to cover requirements as he receives his orders. The readjustment in distributing methods has permitted him to do this with satisfaction. In these calculations, dealers consider the jobber as an "idler pulley," pointing out that the manufacturer actually has been carrying the stock, which impelled his desire to operate more nearly in conformity with the practice of the retailer.

While the national election produced no drastic result on the market, it was the consensus of opinion that its ultimate effect would be a wholesome one.

A movement of importance in the trade is the effort being made by the Southern Yarn Spinners' Association, in conjunction with the Division of Simplified Practice of the Department of Commerce in the working out of a system of yarn standards and simplication, looking to a reduction in the range of numbers, as well as the establishment of a standard of twist and put-up.

Following are quotations on the Philadelphia market on November 15th:

Single Skeins.

4s to 8s	40½	10s	41½ @42
12s	42 @42½	14s	42½ @43
16s	43 @43½	20s	47
24s	49	26s	48
30s	50		

Single Warps.

8s	42	10s	42½
12s	43	14s	43½..
16s	44	20s	45
26s	48	30s	50½ @51
40s	56		

Carpet and Upholstery Yarn in Skeins.

8s and 9s 3-4 slack	41
8s 3-4 hard white warp twist	39 @39½
8s and 9s 3-4 tinged tube	37 @37½
8s 3-4 hard twist waste	36½ @37

Two-Ply Skeins.

8s	42	10s	42½ @43
12s	43 @43½	14s	43½ @44
16s	44	20s	45 @45½
24s	48½	26s	49
30s	51	40s	55 @56

Two-Ply Warps.

8s	43½	10s	44
12s	44½	14s	45
16s	45½	20s	46
24s	48½ @49	26s	49½ @50
30s	52	40s	56 @57

Frame Spun Carded Yarn on Cones.

8s	40	10s	40½
12s	41	14s	41½
16s	41½ @42	18s	42½ @43
20s	43½ @44	22s	44
24s	44½ @45	26s	45½ @46
30s	48 @49	40s	54½ @55
Carded			49
30s tying-in			47 @48

Two-Ply Combed Peeler Skeins and Warps.

8s to 16s	53 @54	20s	56
24s	58½	30s	60
40s	66 @67½	50s	70
60s	75 @77½	70s	83 @85
80s	93 @95		

Mule Spun Carded Yarn on Cones.

10s	44	12s	45
14s	46	16s	47
18s	48	20s	49
24s	50	26s	51
30s	53	40s	60

Mule Spun Combed Peeler Yarn on Cones.

10s	50	12s	51
14s	52	16s	53
18s	54	20s	55
22s	56	26s	60
28s	61	30s	62
36s	64	38s	67
40s	69		

LEESONA
REG. U. S. PAT. OFF.

This Universal Wound Bobbin Contains twice the Usual amount of filling Yarn

—That's Economy

SPINNING Filling Yarn to spinning limitations rather than to shuttle capacity means an important flexibility of spinning equipment, and the use of bobbins containing twice the usual amount of filling yarn assures a 5% to 20% saving of doffing time. That is economy.

Converting a former extensive yarn waste into first quality cloth and producing more and better cloth than ever before is assured by the use of Universal Wound filling yarn in your mill.

Universal engineers in one interview can prove to you that the saving resultant from the use of Universal wound filling more than offsets the cost of the preparatory process. Remember this interview in no way obligates you.

UNIVERSAL WINDING COMPANY

Providence, New York, Chicago, **BOSTON**, Philadelphia, Charlotte, Utica,
Montreal and Hamilton, Canada

DEPOTS AND OFFICES AT MANCHESTER AND PARIS

UNIVERSAL WINDING

Your fabrics can be no better than the needles that knit them.

Put on the spectacles of cold reason and size up latch needles for what they are.

A needle isn't very impressive to look at, but what a power for good or evil lies in that little latch! It is a marvel of delicate construction. Yet the foundation of your fabrics—and your profits—is based on it.

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The Knit Goods Market

Evidence that there had been considerable quiet buying of hosiery cropped out last month in increased activity among mills, and as indicating many distributors had been holding commitments back pending a sounding of sentiment following the elections, there was a sudden flow of small orders for spot goods in novelty lines.

Buyers coming to market found that even stocks of certain staples were not to be depended on for immediate shipments. Mills had been making deliveries about as fast as goods could be finished while plants were being operated on a curtailed basis. Orders for hosiery to be shipped out within a week had to be declined by more than one manufacturer, and some would not promise deliveries inside of a month. Orders for as few as a half case were rejected on the question of delivery.

The situation had vastly improved from the mill viewpoint, so far as concerned demand. Shipments, orders received and unfilled orders increased and mill stocks were less than a month before. Along with this gratifying showing, there was an increase in production, and it is a question whether some manufacturers did not act prematurely in this respect. Numbers were operating overtime, on certain lines, in the completion of orders for the holiday trade, and were accumulating no stock. But those which were speeded up simply on the assumption the mild boom was the forerunner of a period of wholesome distribution are likely to find that, while there may be a better market for their product, it will not be a satisfactorily profitable one.

The fact that there was no scarcity of hosiery during the months when so many mills were being operated part time, with others idle, leaves the inference there is no immediate need for increasing output. Jobbers will continue next year to buy on a restricted basis and come to market often. They will not buy far ahead and give manufacturers opportunity to plan a production campaign. This is indicated in the absence of much contracting for staples for spring and summer. It will be necessary for manufacturers to carry stocks, as this year, to command the business of a large part of the jobbing element. The strong can do this, while the weak cannot.

The presence of excessive stocks invariably has held prices in check. Mills will be expected to do that which jobbers will not do—carry stocks for immediate use. Some of the more hopeful manufacturers are planning to do this. Using one, making women's spring needle silk hosiery, for illustrating the point, his mill, equipped with 200 spring needle machines, is running overtime, and 100 machines are to be added. In this instance buyers have indicated about what they will want over a period of three to four months and, while their orders are not conclusive that they will take the goods, the manufacturer feels assured they will do so if he can supply them on short notice. This is what he is preparing to do. Were this policy to be adopted by mills generally it is apparent buyers would be having the cold end of the poker and prices would be no more stable than they have been.

A few months ago, when raw materials were low, and the trade had become acclimated to prevailing prices, profits were within the reach of mills that had been operating at a loss or, at the best, breaking even. About that time one manufacturer made a reduction of 12½ cents a dozen in a line of women's hosiery that, apparently, had not been overproduced. Another lopped off another six pence, and confusion followed, to the serious disadvantage of mills for which there had dawned a better situation. The knife also had been put into the prices of juvenile hosiery, and while there was assurance this class of goods would be in big demand for spring shipment, numbers of jobbers withdrew from the market.

One of the better known mill agents lays the blame for uncalled-for price reductions to a class of selling agents that depends rather on buyers coming in than on going out to find them. He is inclined to absolve manufacturers and jobbers from the accusation of precipitating price competition, but he does lay caustic criticism to the latter for a cheese-paring policy that supplies for some mills a strong incentive to bid for business on any terms that will fetch it.

One or two selling agents are charged by this factor with responsibility for the ridiculously low price of $1.65 a dozen for mercerized half hose. Agents who were getting no business, he says, persuaded their mills to accept lower prices. Others met the new quotations, and a new low price was established. It may be some time before it can be put back to the former level.

When the Berkshire Knitting Mills, Reading, Pa., came out with a new price list last month, for the first half of 1925, it was believed manufacturers generally would be prompt to announce similar advances. The Berkshire had added but 25 cents to the 1924 price of its pivotal number, making the price $12 a dozen for 11 strand of 39 gauge. A southern mill is quoting $12.50 for a 12 strand, 42 gauge, and the stocking is reported meeting with much favor in the jobbing trade. Some manufacturers who did not follow the Berkshire say there was such a variance in quotations that they feared they could not hope to get much business on any upward revision, and for the time gave up making anything heavier than five strand as a standard chiffon.

There is a chiffon craze, and many mills making the gauzy stockings are crowded with work to the end of the year, some with business that will carry them into 1925. Mills selling to retailers are especially busy, and it is common knowledge that not a few which are not supposed to maintain retailer connections also are distributing direct.

Chiffons are a profitable proposition for manufacturers who have overcome the matter of an excess number of seconds. One manufacturer, specializing in chiffons, says his seconds run slightly under four per cent. From the forward business placed with this mill the management is led to believe distributors are planning for a long sheer season, running through next summer, and it would appear that as others are selling ahead this may not be an extravagant view.

While there is a market for sheer silk hosiery made on latch needle machines, there seems no doubt the full fashioned silk, sheer and standard weights, is making large gains, and it is assumed this accounts for reported less production of the seamless. The increasing popularity of full fashioned is attributed to the lower cost, by the building of stockings of eight strand silk. Until a little more than a year ago nothing lighter than 10 strand was acceptable, with 11-strand the popular weight. In the eight strand there is a saving in silk that amounts to consider-

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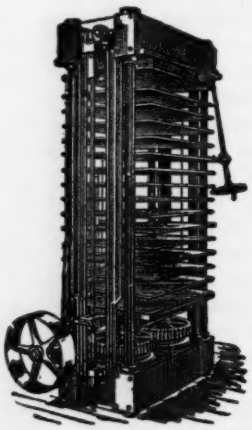

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able, putting the full fashioned pure silk standard length boot stocking in the $1.50 a pair retail class. In fact, full fashioned goods of medium weight are a profitable proposition for retailers at $1.25, which is but a quarter more than dealer's legitimate price for a high grade latch needle stocking.

Charles Chipmans Sons Co. go the all-over seamless a quarter better with their form fashioned silk stocking, which has a full fashioned foot on a seamless knit leg carrying the fashion marks. The form fashion is a big seller, according to Chipman's and a number of jobbers handling the line, which is being manufactured by several mills under royalty, the method of construction being covered by a patent controlled by Chipman's. It goes over the counter at a dollar a pair.

While prices of a number of lines of silk hosiery, both seamless and full fashioned, have been moved up on the higher cost of raw silk, a line of tram half hose is being marketed at the lowest price recorded to date for the current and coming season. It is going to jobbers at $3.62½ a dozen, and some very large orders have been placed, with one of the large mills, which is said to be the first to name a price so low.

Silk half hose has been lagging, according to trustworthy production statistics, while output of cotton, artificial silk and Japan silk straight and in mixture, shows a steady gain. Almost one-half of the September production of all classes of hosiery, making comparison with August, is represented in half hose. The bulk of this probably can be ascribed to the popularity of novelties, of which there never was such an array. And the prediction is heard that this season's more elaborate patterns will look quiet in contrast with what will be offered by retailers next spring and summer. One mill shows samples of striped socks that have been submitted to a few jobbers and received their o.k. It offers a wide selection of striping in both colors and construction, and more stripes are to come.

Hosiery printers were having a harvest while block patterns in diamond and rectangular shapes were being pushed by mills. It is understood their business shows some falling off with the introduction of the knitted-in stripes. Artificial silk half hose in stripes has had a good market, and since mills have been using fiber with a cotton base it has become a stronger competitor with tram silk. Some interests look for a record volume of business in silk and artificial silk hosiery for men and women next year, but it is believed competition among mills will be very keen and that comparatively low prices will rule.

A Philadelphia mill making women's artificial silk hosiery had been operating but 70 per cent of the plant. Some months ago it brought out an attractive line of cotton-base fiber goods, with the result enough business was taken to justify running the whole plant full time. That was some months ago. Recently other manufacturers brought out hosiery of like construction and, as these shared in the business, the mill referred to now is able to take care of orders by operating at but 85 per cent. This mill like many others, probably, has orders for only spot and nearby delivery, and it happens frequently that production is within a week's run of orders, and that by the time it catches up, enough new business has been booked to run through another week. This is believed to be typical of conditions in most of the smaller mills making staples and selling to jobbers exclusively. As to novelties, that is another story.

What still may be regarded as an innovation in half hose is given the descriptive term wind wool. It is a mixture of wool, cotton and artificial silk and is quoted at $3.50 a dozen to jobbers. The sock comes from a southern mill. A design that is given the name pineapple stitch also is a candidate for favor. This construction, somewhat resembling a vertical and horizontal dropstitch, is shown in half hose, misses' ribs and women's mercerized. A Philadelphia mill making women's pineapple stitch hosiery has been operating overtime.

But for novelties, mercerizers depending on the hosiery trade might be seriously in want of business. Something strictly unique in the novelty line is a woman's anklet, from the Unique Knitting Co., Philadelphia. It is the shortest stocking for women ever shown, measuring but 5½ inches from the heel base to the upper rim of the artificial cuff top, which takes in about one-half of the gross length. The leg length, it will be seen, is less than that of an infant's sock. The stocking, the body of which is of mercerized yarn, is intended to be worn over almost any type of full length hose, performing the function of the old-time pulse warmer worn about the wrist. It is being given its first tryout.

Something different in misses' derby ribs has a roll top, the exposed surface of which has a crochet stitch effect, somewhat resembling the sides of a very coarse wood rasp. It is made in the popular seven-eighth length, and has yet to be passed upon by the trade, which would appear to have a plethora of patterns and colors in juvenile hosiery. One New York establishment showing 14 patterns of infants' socks in 16 colors is easily outdistanced by another offering 24 numbers of misses' ribs in two top-patterns each, and a range of 10 colors. A jobber putting in one dozen each of five sizes of the complete range would have 2,400 dozens, and his assortment would be badly shattered in a single hour's selling. But no jobber would do any such thing.

While novelties are the life of the hosiery trade, jobbers have had a surfeit of them, and would prefer to kill off some that seem essential in any well regulated establishment, rather than that there be further additions. Retailers, on the other hand, take to them, and because jobbers do not have a large variety of selections, are more disposed than ever to buy from mills direct. Thus it happens that manufacturers who let it be understood that jobbers are their only patrons are getting into retail stores through the rear door. A few of the bolder primary market sellers use the front entrance, and make no denial they are looking for buyers, whether jobbers or retailers makes little difference to them, so long as sales mean profit.

So common has direct selling become, to the detriment of the business of many large distributors, that a jobbers' organization has taken up the question, "What shall we do with manufacturers selling to the retail trade direct?" It was planned to have a star chamber discussion of the subject at an early meeting of knit goods jobbers. The disturbance to them over distribution is akin to that which has upset retailers who see some of their business drifting to establishments which sell to consumers direct through canvassers, a method of doing business that is making headway notwithstanding efforts of retailers to stifle canvassers, through legislation for imposing a heavy license tax, if necessary.

Canvassers have done for some mills what jobbers and retailers could not or, at any rate, did not do. The Real Silk Hosiery Co., for example, is credited with having large sales of hemtop half hose, a type of stocking that did not receive the sanction of the jobbing and retail trades. Mills in need of business are not quite so particular of the outlet as they once were, so long as they can market their production profitably.

While the big business in hosiery during the fall months was in silk lines and novelties, there has been a general picking up, all along the line. It is expected there will be a slowing down during the holiday period, as usually is the case; that some buying for spring, which should have been done by this time, will be deferred until early January, when, unless all predictions fail, there will be witnessed another revival not unlike that which had its beginning in September-October and continued through last month. The one fear in the trade is that some manufacturers, exaggerating the size of the next movement, may prepare for it on an unnecessarily large scale, as they did last year and, to some extent, again this year in relation to wool hosiery, which so far this season has proved disappointing.

A month or two ago it looked as though there had been an outbreak of demand for women's hosiery for wool in combination with artificial silk. It was but a flash in the pan, as was discovered after a few mills with stocks in the gray rushed them to dyers. Women, in discarding wool, have gone to the other extreme, in making very light weight silks their standard for winter wear.

Men's wool hose is in good shape, because made in patterns which are appealing, and novelties, heathers and plain colors have a fairly good market, if in the moderate price range. Many dealers catering to the better trade use imported goods, and are getting as much as $3 a pair for block pattern full fashioned lisle half hose made in France. A chain of retail stores is putting in a line of domestic lisle socks made on latch needle machines equipped with a device for forming the patterns, simulating the French stocking. Successful marketing of hosiery, to a greater extent than ever, begins with the designer, and needs exhibitors and order takers rather than salesmanship.

Some commotion was caused in the underwear primary market early last month by the wide circulation of reports that the Appalachian Mills Co. and the Standard Knitting Mills, the big producers of men's heavy weight cotton ribbed underwear in Knoxville, Tenn., contemplated opening their lines about the middle of November for the season of 1925-6. There was foundation for the report, as was admitted at the offices of the mills, but rumor was in error as to the date for the formality. The disturbing feature of the situation so suddenly precipitated was the fact it was known that, regardless of the date, prices would be lower than a year ago. This needed no confirmation, as cotton had receded by about 10 cents a pound, making a difference, buyers figured, of at least $1.50 a dozen for 16-pound union suits and a proportionate paring of last year's prices of lighter weight suits and shirts and drawers.

There were manufacturers in the North, and in the South as well, who were inclined to question the feasibility of coming on the market this year for the next winter season. They were booking small orders right along at an accepted price level. Jobbers still needed much winter underwear, but they were buying it only as they received orders from retailers, and the latter were withholding orders pending a drop in temperatures.

At this writing there has been no formal announcement of the opening, but the trade has a well developed hunch that the two Tennessee mlls, and perhaps others, would be offering their lines by or before the first week in December. Jobbers did not want to pay this year's prices for goods for the current season when they felt assured goods bought after the opening would be invoiced at next year's lower prices. Furthermore, it was assumed that retailers would be similarly disposed, and that their orders would not be coming through as early as had the opening been deferred a month. Thus the jobbers may not have finished their season until after the end of the year, and will be delivering goods at both this year's and next year's prices.

Comment ran from condemnation of to praise for the mills which had planned an early opening. The southern establishments, it will be recalled, for several years have been coming on the market in November, and it is admitted in the trade that their sales at and following the openings vindicated their policy. Jobbers bought in November in previous years, particularly on a rising market, and it was reasoned they would do so this year, on a decline in prices, which some believe will be lower at the start than a few months hence. Then, too, it was reasoned, if the Tennessee mills did not pursue the policy of previous years in the matter of opening, some interests might charge the departure to ulterior motives. All said and done, the mills did what the trade might have expected them to do.

Heavy weight underwear mills had a lean year, due in great measure to low temperatures until late in the Spring and unseasonably high temperatures until almost the threshold of winter. Because of the climatic anachronism, so to speak, and the fact prices were high, jobbers were late in contracting for this season's underwear, and production was sharply curtailed during the summer, with the result that when, in September and October distributors came to market, there was a scarcity of assortments and of certain numbers for immediate delivery, about the only delivery for which the average jobber was buying. All hands will close the season with no carryover goods, so that the outlook is for a far better market situation next year, particularly as mill prices will be lower.

Some few manufacturers appear quite well satisfied with this year's volume of business in heavy weight underwear. One in Connecticut, for example, scored a considerable increase over 1923 in its business in women's winter garments. Some of the Central West mills, whose men's lines are of a somewhat distinctive type and are well entrenched, also sold a normal season's production. In the main, however, and notably in New York State, manufacturers had room for considerably more business than was written.

An executive of one of the more successful large mills says underwear is the most unsystematically marketed of textile lines. He is severe in his criticism of manufacturers, numbers of whom, he says, price their lines without knowing either their actual cost or the attitude of the market, expecting too much from selling agents. He is a believer in complete cooperation among manufacturers in the matter of cost ascertainment, prices at the opening and cohesiveness thereafter, but instances a half dozen or more big successful establishments that operate on the go-as-you-please plan naming prices without consultation with others, stick-

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ing to them and opening when they believe jobbers are ready to buy. Of course they give jobbers price protection, but that is what, in effect, most manufacturers of underwear are and for some time have been doing.

The same spotty situation as among mills exists in relation to light underwear for the next season as is shown among manufacturers of winter weights. One leading mill has booked to date 50 per cent more orders for next spring and summer than to the corresponding date in 1923, and is sold well up. Another, taking rank with this one as to character of product and merchandising methods, has sold but around 25 per cent of what was contracted for to the middle of November last year. This is believed to be as good a showing as can be made by the average bal briggan mill.

Retailers were late with their buying of underwear for last spring and summer, as they were in placing orders for their winter requirements, and it is reasoned that having gotten through the season satisfactorily by leaving it to mills and jobbers to carry stocks for them, they will pursue the same policy in 1925. Jobbers, therefore, have been in no hurry to contract for more than a fraction of their prospective light weight needs, although a few admit there will be danger in deferring commitments until January. Some believe that by that time the price of cotton will have been fairly stabilized, on a perhaps higher than the current level; that jobbers as a body will then start buying and manufacturers will have opportunity, and justification, for that matter, for advancing prices or taking their lines off the market for a time, repeating the performance of last spring. Others declare nothing of the kind is going to happen, and point to a recent reduction in a line of six-pound ribbed suits, marked to $6.50 a dozen from $6.75. This gave the market no immediate jolt, but traders would prefer that the price had been kept where it was put originally.

Light weight knitted underwear, it seems, must reckon with still more competition from nainsook and kindred garments for men. Several very attractive lines of nainsook and soisette athletic suits in subdued stripes and plaids are on the market, some of these passing over the counter at $3 per garment, a retailer here and there getting $3.50 to $4, depending on the location of the store and its class of trade.

Wool underwear is being offered in a quiet way for the next heavy weight season. Prices show little change from last year, but the garments will contain less wool, it is stated —that is, they will be of lighter construction. With raw wool around 15 per cent higher than a year ago and up about 50 per cent since July last, it is apparent mills either must exact higher prices or take the difference in cost out of the underwear. They prefer the latter. A legitimate price for a 17-pound suit would be about $6 a dozen above the opening a year ago, and few jobbers would stand for that. Wool in the last year has advanced not quite as much as cotton declined.

Notwithstanding the higher prices of wool, sweater manufacturers seem to doubt that they can look for higher prices for their product. To date there has been no reflex from the informal opening of a few mill lines in Chicago early in November, but subsequent happenings in the New York primary market leave the inference manufacturers are by no means unanimous on the matter of what their goods will fetch. A line from a mill in the Mohawk Valley was opened at $37.50, an advance of $2.50 over 1923. Another line, formerly quoted at $30, was offered at $28.50. The opinion was heard that neither manufacturer nor jobber had confidence in the November figures.

There is fear in some quarters in the trade that Germany will compete in this market with staple sweaters, and where such apprehension exists there is stressed the importance of making the next season another novelty period and depend on style for preventing the market being flooded with foreign garments in other than the cheaper classes.

National Safety Council, 168 North Michigan Avenue, Chicago, Illinois, has for distribution a "safety calendar" for 1925 that is of unique design. A series of twelve beautiful oil paintings, each a lesson in safety, illustrates the twelve sheets, while on the back of each page is printed an article dealing with "First Aid in the Home," "Resuscitation," "Antidotes for Household Poisons," etc., which together with the lessons in the pictures, are intended to make the calendar a twelve months' course in safety. The calendars may be procured from the Council at nominal prices, either singly or in quantities for distribution to em ployees.

The "Truscon Maintenance Map," recently issued by The Truscon Laboratories, Detroit, Michigan, is an attractively arranged illustration of the uses to which the various products of this organization are put. A sectional view of a building shows a variety of applications of these products, and useful maintenance information for buildings and equipment is given on the chart.

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